

MARCH 1921 ~ No 182

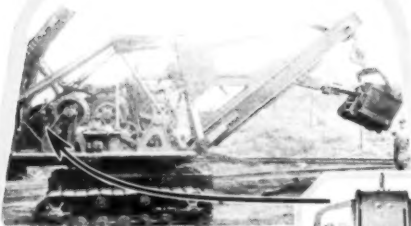
Monthly

A Reference for Buyers

HITCHCOCK'S  
**MACHINE  
TOOL LIST**

Distributed Free to Machine Tool  
Users Everywhere in the United States and to  
Dealers in American Machinery Abroad

Published by  
**A. H. HITCHCOCK**  
1220-1235 Caxton Building  
Chicago



## The Performance of This Type T Motor Manifests Power Ever-Ready for Continuous Heavy Duty Work

Dependable power is a prime essential in manufacturing on a small margin of profit.

A motor of unusual strength and endurance is vital. A Type T Motor's ability to operate this Thew Shovel day after day manifests reserve capacity ever-ready for sudden hard pulls. Working under unfavorable conditions and resisting the strain of frequent overloads this Type T Motor demonstrates the value of more and better material in vital parts—heavier shafts, more rugged brackets, field coils insulated for hard service and a commutator eight times improved. These improvements are the result of years of motor experience of 35 Electrical Engineers.

Independence from power trouble far outweighs first cost of a motor. Type T Motors are dependable power units.

*Write for facts of Type T Motor performance and Bulletin 2014.*

### **Reliance Electric & Engineering Co.**

1050 Ivanhoe Road, Cleveland, Ohio

#### *Branches:*

Boston New York Philadelphia Pittsburgh Cincinnati Detroit Chicago

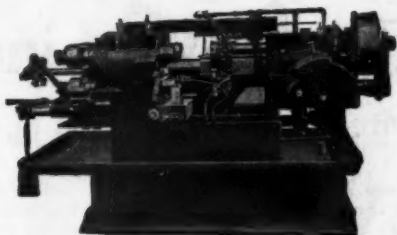
*We specialize in motors, sizes 1/2 to 150 h. p., constant and adjustable speed D. C., squirrel cage and slip ring A. C.*

**Type T Heavy Duty**  
**RELIANCE MOTORS,**  
*Direct Current*









## GRIDLEY MULTIPLES

Men who purchase GRIDLEY MULTIPLE SPINDLE AUTOMATICS know them. They have that thorough knowledge so essential to a profitable investment, and, in the great majority of cases, this knowledge has been gained by experience.

If you don't know GRIDLEYS, we want to tell you what they offer in speed, accuracy and adaptability on your work.

*Capacities up to 2½" diam.*

### THE NATIONAL ACME COMPANY WINDSOR, VERMONT

General Offices, Cleveland, O.

Canadian Screw Plant, Montreal, P. Q.

#### *Branch Offices:*

New York

Boston

Chicago

Detroit

Warehouses—New York, Chicago

With Foreign Representatives

*Makers of Gridley Single and Multiple-Spindle Automatics at Windsor, Vt., and Acme Automatics, Threading Dies, Collapsing Taps and Screw Machine Products at Cleveland, Ohio*

# The **HEALD** Line

## Handles Every Internal Grinding Job

It certainly is poor business to buy a machine tool that is not exactly suited for the job. We build six styles of Internal Grinders covering work of every character.

### OUR LINE

**Style No. 80** Power Feed Internal for small, fairly long work.

**Style No. 85** Hand Feed Internal for small, short work.

**Style No. 70** Power Feed Internal for miscellaneous medium sized work with straight or taper holes.

**Style No. 75** Hand Feed Internal for medium sized short work. Also recommended for thrust grinding.

**Style No. 55** Cylinder Grinder for a great variety of large awkward shaped work.

**Style No. 65** Cylinder Grinder for manufacturers of similar large awkward shaped work.

Samples or blue prints will assist us in making recommendations to your advantage. Learn from our experience.

**The Heald Machine Co.**  
Worcester, Mass.



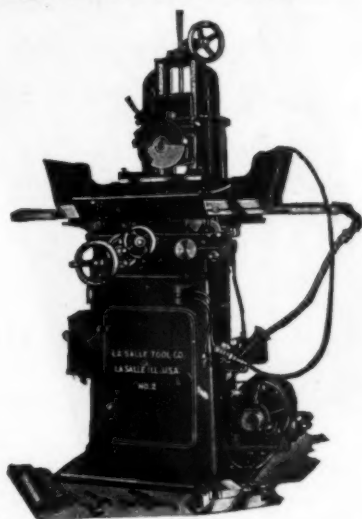
Here is the book you should  
use as a buying guide when  
ordering cutters.

Send for *your* copy today.

**BROWN & SHARPE MFG. CO.**  
PROVIDENCE, . . . R. I.

# LaSalle Grinders

Improved to the Minute



**La Salle No. 2 Automatic, Motor Driven, A. C. or D. C.**

This machine is the product of long experience and expert experiment in latest mechanical efficiency. Indispensable for many manufacturing jobs and tool room operations.

The La Salle No. 2 offers improved design, maximum durability, easily preserved alignment, with absolute security and simplicity of control and adjustment. New features: (1) large water base reservoir, automatic pump attachment and settling tank; (2) wheel-truing device, which insures "truing" operation without disturbing work on table. Complete table adjustment. Dirt proof bearings.

*Let us know your grinding requirements*

**LaSalle Tool Company**  
**La Salle, Illinois, U. S. A.**

# La Salle Grinders

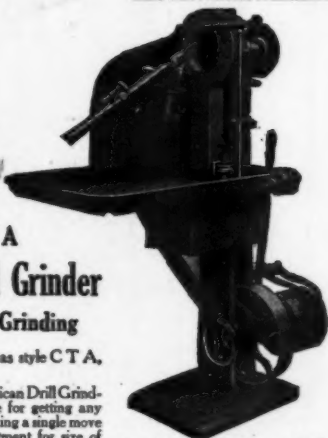


**Style CTA**  
**American Drill Grinder**

**For Dry Grinding Only**

Unexcelled as a dry grinder for twist drills from  $\frac{1}{8}$ " to  $2\frac{1}{4}$ " diameter. Extra large drill holder has capacity from 1" to  $3\frac{1}{2}$ ".

Style B T A is a similar machine with overhead countershaft.



**Style W T A**  
**American Drill Grinder**  
**For Wet or Dry Grinding**

Has the same drill capacity as style C T A, shown above.

A handy feature on all American Drill Grinders is the Caliper Jaw device for getting any desired clearance without making a single move other than for regular adjustment for size of drill. Write for complete specifications, which outline their splendid design in detail.

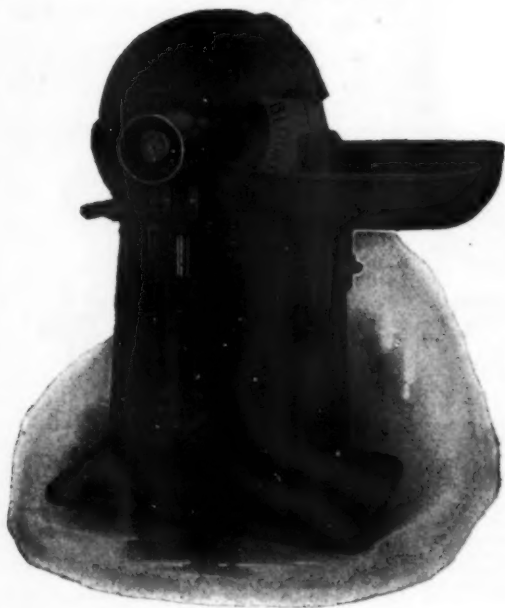
American Drill Grinders are furnished wet or dry, motor driven, with self-contained countershaft or with overhead countershaft, as fully described in our literature.

## La Salle Tool Company

La Salle, Illinois, U. S. A.

# GRIND IT On a BLOUNT

20" Wet Tool Grinder



*Catalog on request*

Blount Wet Tool Grinders are built in three sizes for 14", 20" and 30" Grinding Wheels respectively.

**J. G. BLOUNT CO.,** **Everett 49, Mass.**  
8



*Greenfield*  
TRADE MARK REG. U. S. PAT. OFFICE

## No. 2 Universal

A VERSATILE GRINDER. Head swivels on Standard. Standard swivels on Base. Slides turn *with* Standard, not around it.

A substantial, well built grinder equipped with a large assortment of convenient attachments designed for handling a wide variety of work.

*Ask for particulars*

**Greenfield Machine Company**  
Greenfield, Mass., U. S. A.



No. 190 "WELLS"  
*Universal Cutter and  
Reamer Grinder*

Will handle practically all grinding requirements of the small shop at a moderate cost.

*Write for descriptive  
data sheets*



MACHINE TOOL DIVISION





# Reid No. 2 Surface Grinder

A Precision Tool of Highest Practical Value

Grinds  
18" Long  
6" wide  
11½" High

And don't  
fail to  
ask us  
about the

Reid  
Universal  
Angle  
Fixture



Not only is this machine exceptionally rigid, with a true-running wheel and the closest adjustments, but experience and care have enabled us to make those

features as nearly permanent as is humanly possible.

*All castings, made of clean gray iron, are roughed and seasoned, then finished and scraped to master plates—they are permanently set.*

*The spindle, which is hardened, ground and lapped, runs in phosphor bronze boxes, with adjustments for wear and end play.*

*A compact spring curtain readers wearing surfaces impregnable to dust—prevents accumulation of dirt and grit—extremely important in practical operation.*

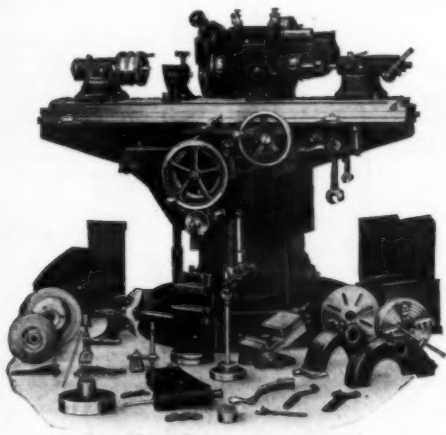
*Write for description of this rigid, productive grinder*

**Reid Bros. Co.** 59 Park St. Beverly, Mass.

Export Department, 77 Broad St., New York City  
English Agents, Oliver Machinery Co., Ltd., 201-03 Dransgate, Manchester, Eng.

**"Handles ANYTHING in the Grinding Line"**

## **Thompson 10"x36" Universal**



The NEW IDEA embodied in the "Thompson" is that of combining in a single machine the capacity for performing *every* possible grinding operation required in a machine shop. This principle has been insured by maintaining the grinding wheel in a fixed position right along, whilst the grinding table carrying the work is adjustable to *any* desired position relative to the wheel.

As required, therefore, the machine can, in turn, be converted into a (1) plain, (2) surface, (3) edge, (4) die, (5) cutter, and (6) internal grinder. For speed, simplicity of operation, precision and quantity of output, high standard of mechanical skill, and its capacity for handling ALL kinds of grinding, it is absolutely unequalled.

*Send for the specifications and look them over*

**The Thompson Grinder Co.**  
**Springfield, Ohio**

# DETROIT CENTERLESS CYLINDRICAL GRINDERS

For grinding straight cylindrical work without the use of centers



Grinds in rows *continuously*, greatly increasing production.

Feeds *straight* thru guide blocks, and pieces rotate slowly, insuring work that is *round and perfect*. Grinding surface of wheel over 200 square inches.

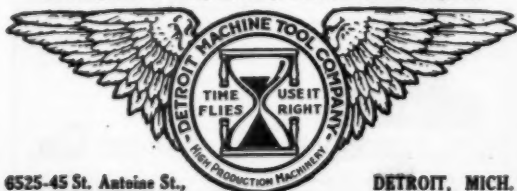
Capacity,  $\frac{1}{4}$ " (and smaller) to  $1\frac{1}{4}$ " diameter, in various lengths.

## Figure out your production

The complete Production Table, shown in our literature, enables you to figure production time on all diameters. The following sample figures show four diameters only:

Diameter	Length	Ft. of Pins per hour	Pos. per hour
$1\frac{1}{4}$ 1.250-1.249.....	4	20	60
1 1.000-0.999.....	$3\frac{1}{4}$	22	70
$\frac{3}{4}$ 0.750-0.749.....	$3\frac{1}{2}$	24	82
$\frac{1}{2}$ 0.500-0.499.....	2	28	168

Let us grind 25 samples free; and write for description



6525-45 St. Antoine St.,

DETROIT, MICH.

# Ott Grinders

Combine the essentials of  
**ACCURACY** and **RIGIDITY**  
with **SIMPLICITY** of design

Simplicity accounts for their price, and for  
their popularity among good operators.

5"x18" Plain—10"x32" Universal—6"x6" Internal

**Ott Grinder Company**

200 West Tenth St., Indianapolis, Ind.

## New No. 12 Partridge Grinder



—With Guards

Also Bench,  
Column and  
Cabinet Grinders;  
Polishing Lathes;  
Light Punch  
Presses;  
Hollow Mills;  
Countershafts;  
Bench Tapping  
Machines and  
Saw Mandrels.

**E. O. PARTRIDGE, 2041-2049, CHICAGO**  
W. Lake St.,

**Instant and Accurate Adjustability**  
**Universal Angle Plate**



**8"x10" Worm Adjusting—Made in Four Sizes**

This modern Universal Angle Plate speeds up and improves output on any kind of machine tool. It is especially valuable for repair jobs.

It transforms Plain Grinders and Millers into Universals. With its use tapers may be ground, round or flat, and several angles may be planed, shaped or milled on one piece with accuracy. Indispensable for quick and precise die-sinking. It eliminates extra "set-ups". Swivels 360 degrees horizontally, and 90 degrees vertically.

Combines maximum utility with absolute precision, and will make many extra dollars for you and your customers.

*Its patented features will repay your  
careful investigation. Get our folder*

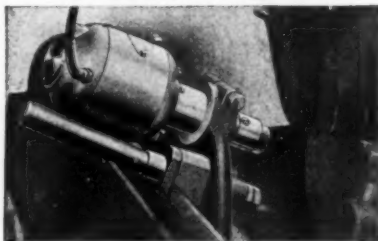
**Boston Scale & Machine Co.**  
100 Ruggles Street, Roxbury, Mass.

**How Would You Like To  
Get Away From  
Diamond Expense?**

*Then Ask Us About*

**The Precision Truing Machine**

**A Device for Truing and  
Dressing Grinding Wheels**



**Can Be Applied To Any Cylindrical Grinder**

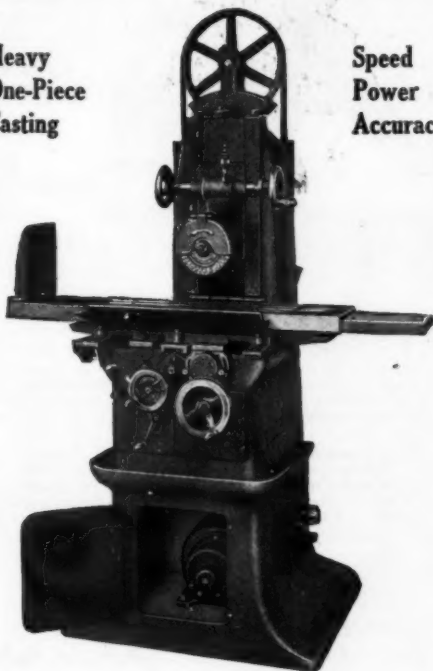
*Ask for Circular H-7*

**The Precision Truing Machine & Tool Co.  
Cincinnati, Ohio**

# The Abrasive—A Pacemaker

Heavy  
One-Piece  
Casting

Speed  
Power  
Accuracy



The Abrasive Surface Grinder lifts the modern grinder up to a hitherto unreached level of mechanical and productive efficiency. Possessing several exclusive improvements, it can be operated with unsurpassed speed and power. Its unusual weight permits the heaviest cuts without distortion or vibration. *Full details on request.*

**ABRASIVE MACHINE TOOL CO.,** East Providence,  
RHODE ISLAND



## DUMORE No. 1 GRINDER

**T**HE Wood Turret Machine Company of Brazil, Indiana, uses the DUMORE High Speed Grinder in many ways which readily show its real merit—in grinding the head of the Wood Turret Lathes for example, and in finishing spindle ends, etc.—the high speed of the DUMORE giving a result much superior to that obtained from slow speed grinders.

Here is a tool in which perfect running balance is combined with correct cutting speed. With a DUMORE in the shop there is no costly tearing down of jobs—no wasteful delay. It is set up easily and quickly wherever it is needed. The DUMORE can solve your grinding problems. It is the only tool on which you may surely rely for speed and accuracy.

Your dealer sells DUMORE Grinders  
Ask him for a demonstration.

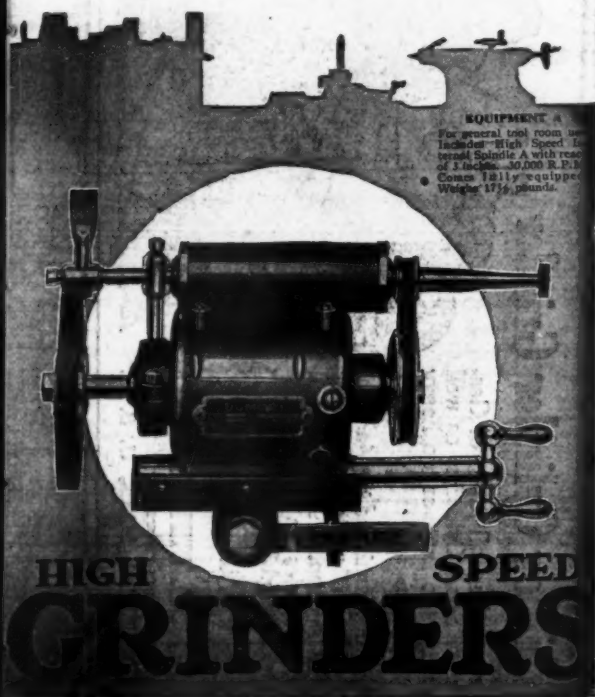
**WISCONSIN ELECTRIC COMPANY**  
4329 Sixteenth Street RACINE, WISCONSIN

# DUMORE



RE-  
ER

# Machine Tool Builders Use the **DUMORE**



## EQUIPMENT A

For general tool room use  
Includes High Speed In-  
ternal Spindle A with reach  
of 1 inch. 30,000 R.P.M.  
Comes fully equipped  
Weighs 17½ pounds.

HIGH SPEED  
**GRINDERS**

---

# Whitney Cylinder Grinder

For grinding all kinds of Gasoline Engine Cylinders as well as work too large or too heavy to revolve.

Machines furnished to grind holes from 3" up to 7" diameter and 14" deep. Also equipped to grind holes as large as 14" diameter and 20" deep.

*Write for new catalog*

**BAXTER D. WHITNEY & SON**  
Incorporated  
WINCHENDON, MASS., U. S. A.

---



# The "Miller" Wheel Dresser

Operates Quickly and Precisely



**Accurate  
And Rapid**

The Miller Radius and Angle Grinding Wheel Dresser trues the faces of regular and irregular shaped grinding wheels quickly and precisely. It forms radii 0" to 1 1/4", concave or convex. Will also dress any angle or form desired.

The diamond can be set at right angles with travel of side for dressing angles thru three splines in tool post. Center height adjustment, 2". The distance of measuring post to pivot center is 3", and by a simple calculation you can make the desired concave or convex readily and accurately. All unsatisfactory and wasteful "rule of thumb" methods eliminated.

*For accelerating and improving production the "Miller" is a gilt edged investment. Why not get acquainted?*

## Otto A. Miller & Sons

408 Moffatt Bldg., Detroit, Mich., U. S. A.



**Keep Up Your Tools  
Keep Down Your Costs**

with

**Grand Rapids  
Drill Grinders  
Tap Grinders  
Universal Grinders**

which

**Give Perfect Results**

*Catalog on Request*

**Grand Rapids Grinding Machine Co.,** 17 Ottawa Ave., N. W.  
Grand Rapids, Mich.

## **Saves Moving Castings**

**Stow Flexible Shaft is Easily Carried**



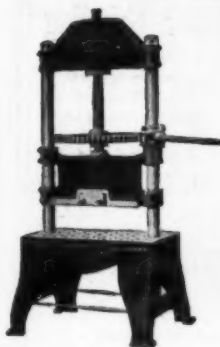
**HANDY**, not only for grinding castings, but for a hundred-and-one odd jobs of grinding, drilling, tapping, reaming, polishing, etc. Hurries up repair jobs. Write for illustrated circulars.

**Stow Flexible Shaft Company**

**26th & Callowhill Sts.,**

**Philadelphia, Pa.**

# Two Unusual Machines



**Type B Screw Press**

The "Manhattan" Press costs a tenth of the price of a punch press. For quick and accurate aligning of punches and dies it puts it all over the punch press. It affords perfect alignment. It allows a complete view of punch and die from all sides. Avoids holding up punch presses for this work, and cuts out the extra labor costs required to operate them.

The "MANHATTAN" is a one-man machine. Combines maximum efficiency with economy.



**Manhattan Surface Grinder**

It is compact, massive and rigid. Has oversize phosphor bronze bearings. Even under the heaviest work there is no chatter. Fractions of 1000's of an inch may be obtained on both feeds. Shape of body casting affords maximum clearance. Its special features and improvements greatly increase its accuracy and productivity.

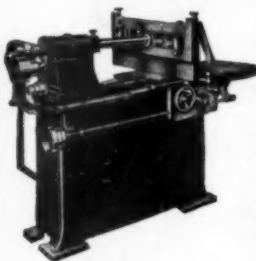
High grade machinery steel spindle runs in large dust-proof, wick-oiled bearings.

**IT IS NOISELESS**

*Let us send you full particulars about these quality machines*

**Manhattan Machine & Tool Works**  
Dept. A, Grand Rapids, Mich.

## The "SCHMIDT" Eliminates The HI-COST of Cylinder Grinding



The "Schmidt" is accurate, productive and simple to operate. It regrinds all makes of cylinders and cylinder blocks—large or small.

Any ordinary mechanic can set up and regrind four FORD BLOCKS in a working day. Its special adjustments insure easy, quick and perfect centering of cylinder. Two H. P. drives it at full capacity. Very compact,—3'x5'.

*Send for full details of this high-grade economy tool.*

**B. L. Schmidt Co., Dept. A 8, Davenport, Ia.**

## There Is Nothing Better Than The "Duplex" Emery Wheel Dresser For Maintaining Fine Cutting Surfaces

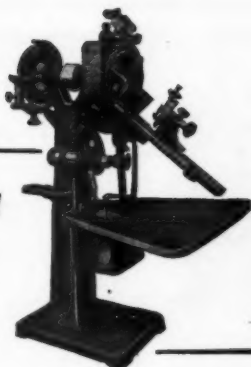


Unexcelled for leaving a fine cutting surface on grinding wheels. The patented aluminum hood protects the operator against flying particles. Either of two cutters is furnished: (1) the "Diamond" Cutter, designed for truing large, coarse wheels; or (2) the "Improved" Cutter, for truing medium and fine wheels. These cutters run on a bronze bushing.

*Sure we send them on trial—just say the word*

**Cleveland Flue Cleaner Mfg. Co.**  
321 Frankfort Ave., N. W., Cleveland, Ohio

**Improved  
New  
Yankee  
Drill  
Grinders**



WPL

## **Grind Your Tools *Automatically***

**No Skilled Mechanic Required**

Wilmarth & Morman Improved New Yankee Drill Grinders will keep your drills in perfect condition, grinding correct angles—proper clearances and equal cutting lips. These Precision Grinders eliminate oversize cutting—drill splitting—overheated drills and loss of temper. Made in combination with Wilmarth & Morman Tool Grinder and take drills from No. 52 to 3½".

*Check your files and see if  
you have our new catalog*

**Wilmarth & Morman Co.**

**Master Grinder Makers**

1185 Monroe Ave., N. W., Grand Rapids, Mich., U. S. A.

Type M 5



We build them in several types & sizes

**Strand**

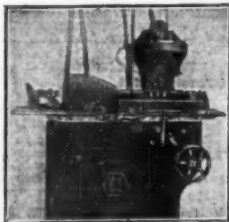
TRADE MARK

## Move It Around

Ready for work anywhere. A good machine for the Tool Room or Machine shop. Will carry grinding wheels, buffing wheels or scratch brushes up to 5" diam.; drills up to  $\frac{3}{8}$ ". Metal Pattern Makers use this machine extensively equipped with scraping bars and polishing drum. A time saver.

**N. A. Strand & Co.,**  
Machinery Hall,  
Chicago

## A Big Money Saving Hob and Form Cutter Grinder



**1** The HARRIS AUTOMATIC CUTTER GRINDER prevents inaccurate, uneven grinding or crowding of cuts.

**2** Its perfect lubrication preserves temper of tool.

**3** Its automatic action enables an unskilled operator to run several grinders at once.

**4** It has very simple "set up."

**5** It quickly pays for itself simply by accurately re-gashing worn milling cutters.

Why not let it cut the HI-COST of your Expensive H. S. Steel Hobs and Form Cutters?

Send postal for our Illustrated Folder H. K.

**Harris Engineering Co.** Bridgeport, Connecticut



## The "RANSOM" Line Of Grinders Offer Superior Grinder Quality



### No. 6-B Ransom Grinder

This efficient machine tool is equipped with all the latest distinctive improvements, is of massive design and capable of maximum accurate and varied production. Its plan and proportions completely eliminate chatter or distortion.

Its bearings are ring-oiling and dust proof, lined with old formula pure genuine babbit. Caps are fitted with tongue and groove. The length of arbors permits the use of safety-shape emery wheels. Countershafts have self-oiling ball and socket hangers. Arbor  $44\frac{1}{2}$ " long. Takes  $18 \times 4$ " emery wheel. Weight 650 lbs.

*Get our Bulletin BB 9, or our Complete Catalog*

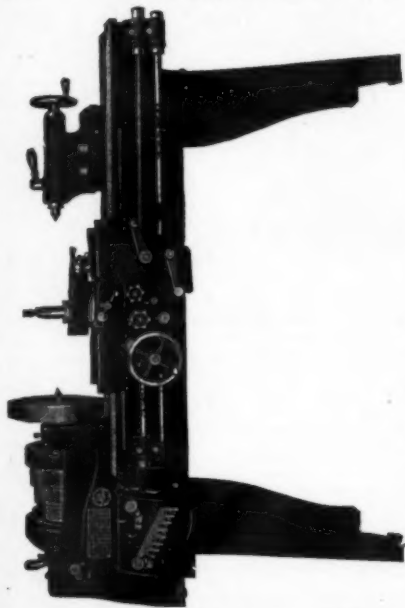
**Ransom Manufacturing Company**  
Oshkosh, Wisconsin, U. S. A.

# Monarch Lathes

give universal satisfaction to the user. They have been doing this for years, and this accounts for the ever increasing demand for **Monarch Lathes**. Built in all styles and with any attachments desired.

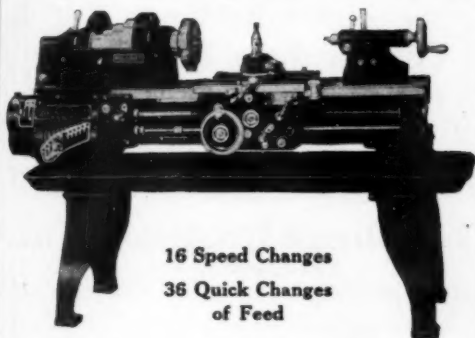
**Sizes 10 to 30-inch Swing**

*Sold by a leading Machinery Dealer in every machinery center.*



**THE MONARCH MACHINE TOOL CO., 106 Oak St., SIDNEY, OHIO**

# Porter - Cable Tool Room Lathe



**16 Speed Changes  
36 Quick Changes  
of Feed**

Its many special features, taken as a whole, fully establish the superiority of design of the Porter-Cable Tool Room Lathe for practical results.

As an example of its peculiar merit, get the folder and study the Lead Screw, its bearings, control and operation. We shall not attempt to fully describe it here; but suffice it to say that no gears are mounted on the Lead Screw itself, which is suspended on its own independent bearings. It is not splined nor used as a feed shaft. It is so arranged that it always rotates freely with a perfectly balanced motion, without end play, side strain, cramp or distortion. A convenient lever controls its operations.

*Let us send the folder—look it over at your leisure—  
You will find it interesting, instructive and profitable.*

**The Porter-Cable Machine Co.**  
**Syracuse, N. Y.**

The Word  
**"HARDINGE"**

Stamped on Screw Machine collets or  
draw-in chucks for tool room lathes

**Guarantees Accuracy**

Look for the marking

We can fill your single or quantity orders  
in Round, Square or Hexagon.

*When making inquiries refer to "Chuck Department"*

**Hardinge Brothers, Inc.**

1770 Berteau Ave.

Ravenswood

Chicago, Ill.



**COLLETS**

for

**Lathes and Screw Machines**

Any Size

Any Type

Any Quantity

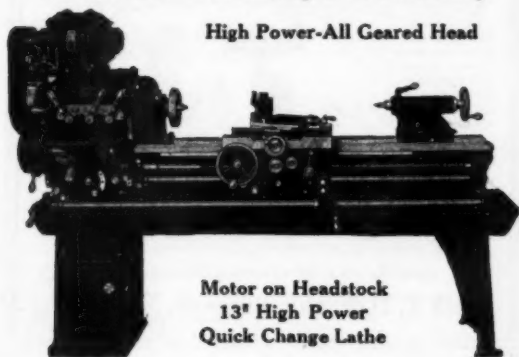
**Morrison Machine Products, Inc.**

**Rochester, "Collet Specialists" New York**

# You Can't Beat The New Willard

(Mattman-Bratten) Tool Room Lathe  
For Maximum Economy and Efficiency

High Power-All Geared Head



Motor on Headstock  
13" High Power  
Quick Change Lathe

The NEW WILLARD is a high grade, up-to-the-minute tool Room Lathe, completely redesigned, and combining unrivalled economy of operation with maximum efficiency of production.

Here are a few of its features:—

The spindle is chrome nickel steel, forged and bored from the solid, ground to accurate size and guaranteed interchangeable.

All gears are chrome nickel steel, and all sliding gears are hardened.

Headstock is a full box section, internally ribbed and fully self-contained, with selective speeds inside the headstock.

Only one speed can be engaged at one time.

There are six speeds, and six others are available thru the back gears—TWELVE IN ALL.

*Send for full description of this new, superior, cost-cutting lathe.*

**The Willard Machine Tool Co., Inc.**

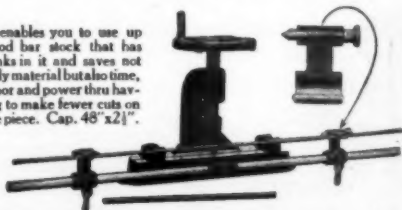
F Street, Box 784

CINCINNATI, O., U. S. A.

## "TOWSLEY" Bar Straightener

### Prevents Waste of Bar Stock

It enables you to use up good bar stock that has kinks in it and saves not only material but also time, labor and power thru having to make fewer cuts on the piece. Cap. 48" x 2 1/2".



*Repair Work* also done on bent journals, shafting, axles, etc.  
*Special Work* done, as bending and pressing tubing, axles, etc.

*Want details of this improved economy tool?*

**JOHN T. TOWSLEY MFG. CO.,** 1037 Woodrow St., CINCINNATI, OHIO

## RED-E Lathe Centers, with High Speed Steel Points

### Increase Lathe Output



They last *10 to 20 times longer between grindings* than do the regular carbon centers.

They *increase output* by saving the workmen's time, by keeping the machines busy, and by enabling operators to run machines at the highest speeds.

Accurately made and points ground true. Positively will not burn or freeze to work. B. & S., Morse and Jarno tapers.

*Catalog H-19 shows our full line. May we send it?*

**The Ready Tool Co.**  
 Bridgeport, Conn.

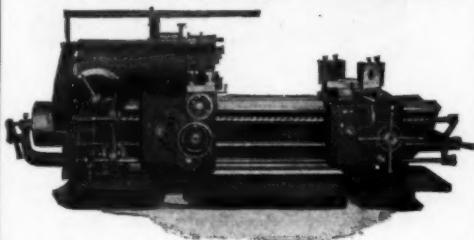


# STEINLE TURRET MACHINE CO.

## MADISON, WISCONSIN

Originators of the Heavy Duty Full Swing Side Carriage Turret Lathe

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## PRE-EMINENTLY— A Manufacturing Machine. WHY?

The first and most important question is one of design, for good design must acknowledge the basic principles underlying the construction of a good machine tool which makes its proper operation entirely satisfactory to those benefiting through its use.

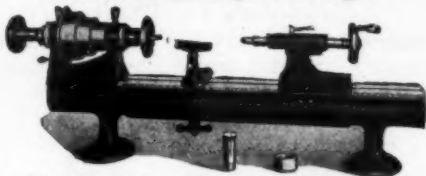
To duplicate a wide range of work rapidly, accurately and economically, the machine must have speeds sufficient to accommodate all diameters and character of work within the range of the machine, power to pull heaviest cuts within the capacity of the best cutting steels, reliability to withstand heavy continuous service day in and day out, facilities for simple or extensive tooling equipment, an ease of operation including power application to feeds and traverses, and convenient location of levers controlling the various functions.

These are a few of the superior features of the Steinle Full Swing Side Carriage Turret Lathe.

*May we furnish you with further details covering design or construction of our machine, together with tooling recommendations for the proper production of your work, or ask to have a qualified representative call in order to go personally and thoroughly into the question of what Steinle methods mean as applied to your production questions?*

## Potter No. 5 Bench Lathe

Cuts Costs and Improves Output



We designed this lathe to insure unusual precision, rigidity and adaptability for our own special needs as machine tool manufacturers. It has not only measured up fully to our requirements but has met with a ready response from firms having use for a modern specialized bench lathe.

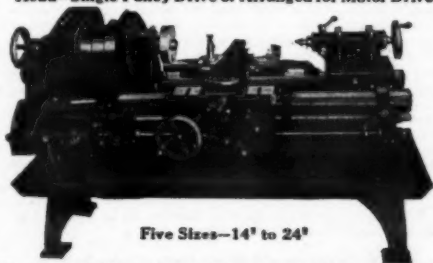
Furnished with or without double cross slide and large turret fixture, compound slide rest, lever tailstock, tailstock turret, milling and other attachments.

*Quality and price equally attractive. Write*

**S. A. Potter Tool & Machine Works**  
71 East 130th St., New York City, N. Y., U. S. A.

## "LEHMANN LATHES"

Three Step Cone—Double Back Geared and Geared Head—Single Pulley Drive or Arranged for Motor Drive



Five Sizes—14" to 24"

These are strictly high-grade engine lathes of superior design and thoroughly good workmanship and material. Built for accuracy and production.

*Write for complete specifications and details. Do it today—NOW.*

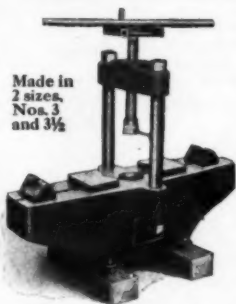
**LEHMANN MACHINE CO., 3562 Chestnut Ave., ST. LOUIS, U. S. A.**



# An Unrivalled Pair

## The "Utility" Screw Press

Made in  
2 sizes,  
Nos. 3  
and 3½



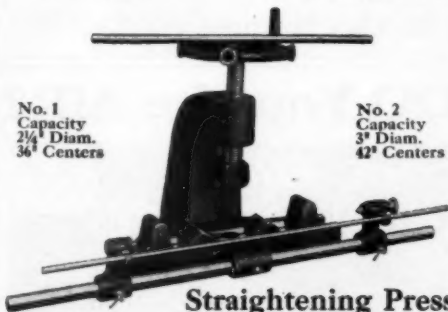
It straightens shafts, bars, rails, beams, etc. It also presses in or out bushings and gears or wheels on and off shafts, and forms or bends metal in many shapes.

The rugged bed is 4' long and has a hole under screw to allow clearance for solid or hollow pressed pieces. Screw is made of high grade steel accurately chased.

Pressure capacity up to 25 tons

No. 1  
Capacity  
2½" Diam.  
36" Centers

No. 2  
Capacity  
3" Diam.  
42" Centers



## Straightening Press

Invaluable in machine shops, garages, etc., where shafts, boring tools, rods, etc., need straightening. Centers mounted on the front enable work to be tested without taking it to a lathe. A hole in base of housing permits broaching or pressing gears, collars, etc., on or off. High grade steel screw.

*Here is top quality value at rock bottom price*

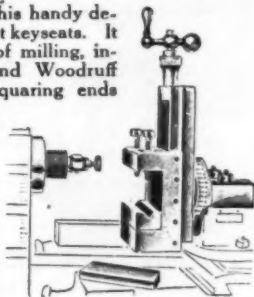
**Carl Pletz & Sons,** 3116 Spring Grove Ave.,  
Cincinnati, Ohio

## A Miniature Machine Shop

With the Davis Lathe Milling Attachment

The picture shows this handy device set up ready to cut keyseats. It does a great variety of milling, including both plain and Woodruff keys. Also fine for squaring ends of shafts and auto axles; sawing; splining shafts; splitting bushings; drilling, boring and a thousand other jobs.

Fits Lathes of all makes, and every size from 12" to 24" swing. Send for folder and price.

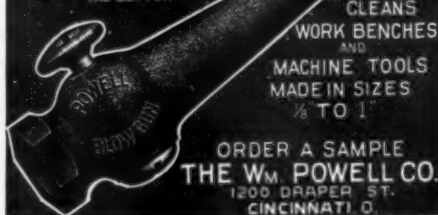


Hinckley Machine Works, HINCKLEY, ILL.

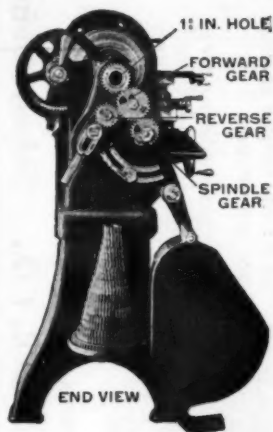
## DO You Use AIR?

THE POWELL  
AIR GUN VALVE

"JUST PRESS"  
THE BUTTON



ORDER A SAMPLE  
THE W. M. POWELL CO.  
1200 DRAPER ST.  
CINCINNATI O.



# Barnes 18 inch Lathe

**Bronze Boxes**

**Steel Racks**

**Hole in Spindle  
1 5/8" Diameter**

**For Garage, Repair Shop and  
Manufacturing Purpose**

**6 ft. Bed \$625.00**

**8 ft. Bed \$650.00**

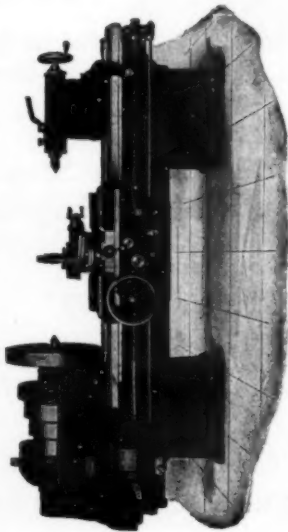
**10 ft. Bed \$675.00**

**Made By**

**W. F. and John Barnes Co.**

**123 Ruby St., Rockford, Ill.**

# SIDNEY LATHES—For All Requirements



The Sidney Line of medium and heavy duty lathes includes a lathe for every class of work, regardless of the size or type of shop you are running.

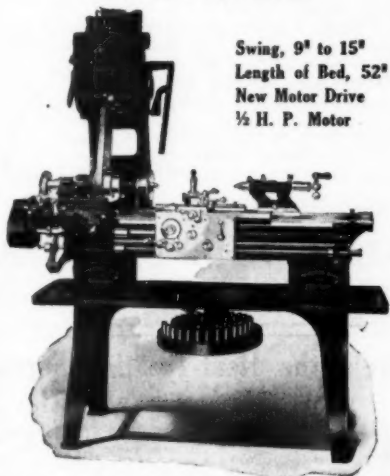
Lathes of medium duty in 14, 16, 18 and 20-inch swings, and of heavy duty in 15, 17, 19, 25, 27, 30 and 36-inch swings.

*Send for Bulletin No. 45.*

**THE SIDNEY MACHINE TOOL CO., Sidney, Ohio**

# The Cataract Precision Lathe

Insures Quick Quality Output  
In Your Tool Room



Swing, 9" to 15"  
Length of Bed, 52"  
New Motor Drive  
½ H. P. Motor

## "Cataract" Quick-Change-Swing Precision Lathe

The outstanding merits of the HARDINGE "CATARACT" are absolute accuracy, simplicity of operation and great range of manipulation. It represents the matured product of nearly 40 years of specialized machine tool manufacture.

The swing can be raised 3" or more by raising blocks, which greatly extend its range of production. A 60-hole index provides for cutting double, triple or quadruple screw threads. Lead screw, 6 pitch 1"x39" changed to 10 pitch by gears in reversing gear box.

All "CATARACT" Lathes are made with jigs and gauges, insuring interchangeability of all parts.

*Send for Catalog, giving full specifications, gear tables, etc.*

**HARDINGE BROTHERS, Inc., Chicago, Ill.**

## **"VINGO" HIGH SPEED STEEL** for LATHE, PLANER and SHAPER TOOLS

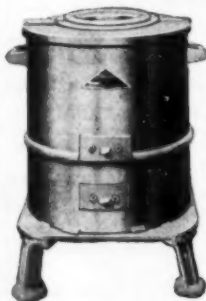
'Vingo' is the latest arrival from the renowned Sheffield steel district and its pedigree is backed by the expert craftsmanship of the hundred-year-old Sheffield Steel makers, Moss, Eadon & Sons, Ltd.

The necessary hammering to densify this steel is done at the works, so the user does not have to resort to forging to get results.

Carried in stock in all the popular sizes.

**ALFRED HERBERT Ltd.,**  
54 Dey Street, New York 11

## **Here's the Heat-Treating Furnace** You Are Looking For—WHY?

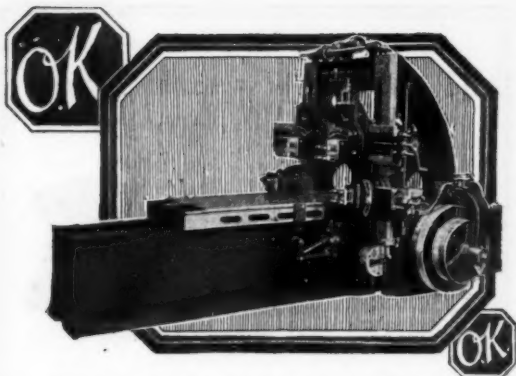


Because the TRIAD 3-Purpose Furnace performs quickly, efficiently and simultaneously **THREE OPERATIONS**: (1) Heats charcoal pot for Lead Bath; (2) Heats dies and tools in Semi-Muffle Chamber for hardening; (3) Gets welding heat for forging in Combustion Chamber.

Not only that, it gives you this *superb threefold quality service* at a saving of above 60% in fuel costs alone. There is but one heating unit—oil or gas—and burner being outside furnace, back-firing is avoided.

*Get our Catalog No. 5*

**The W. R. Bennett Co.,** P. O. Drawer X  
Elmwood, Conn.



## Rapid Production from a Heavy Planer

Here is a big heavy planer that is especially known for speed. If that is important to you read the story below.

### Rockford Planers

are built with a cutting speed of 30 feet per minute and 90 feet return or with gear boxes giving four cutting speeds 22, 30, 38 and 46 feet per minute with constant return of 90 feet. The usual screech of shifting belts is absent on a Rockford because aluminum drive pulleys are used. Saddles are made right and left hand allowing tools to be used close together and are graduated around the entire circle adjustment on either side of the machine.

*Want to know more about it? Then write for further details*

Made by Rockford Machine Tool Company, Rockford, Ill.

Distributed by

**The Fairbanks Company**

Administrative Offices, NEW YORK

#### Branch Houses

Albany  
Baltimore  
Birmingham  
Boston

Bridgeport  
Buffalo  
Chicago  
Hartford

Newark  
New Orleans  
New York  
Paterson  
Philadelphia

Providence  
Rochester  
Scranton  
St. Louis

Syracuse  
Washington  
Havana  
Kingston

*The*  
**FAIRBANKS**  
*Company*

Fairbanks Lathes, Tools & Wheelworks, Valves, Engines & Pumps, Transmission, Mill, Mine & Railway Supplies, Automobile Repair Equipment, Elevator Electric Motors, Machine Tools, Steel Factory Equipment.



The Heavy Duty, Back Geared  
**STAMCO 16" Crank Shaper**

**Is Rigid, Convenient and Productive**

The base is of the extended type and deeper than usual, and the column is also of extra depth and width at the base. This makes a more rigid joint between base and column and lowers the center of gravity.

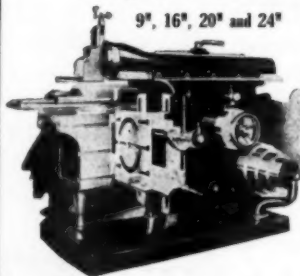
The feed can be varied or reversed instantly while machine is in motion. All adjustments are within easy reach of operator, and all adjusting screws have micrometer collars graduated to .001". These and many other excellent features are fully described in our literature.



*We shall be pleased to furnish full specifications upon request*

**THE STREINE TOOL & MFG. CO., New Bremen, Ohio**

The "MILWAUKEE" Offers  
**100% Shaper Service**



9", 16", 20" and 24"

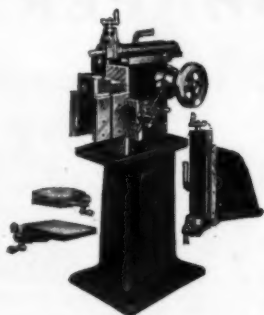
The positive stroke control is instantly adjustable. The Friction Locking Device, positive in action, stands up under the heaviest strains. Swivel tables can be swung to any angle. Rugged ram with "V" ribs operates without vibration. Powerful back gearing. Rigid column.

*Want particulars?*

**MILWAUKEE SHAPER CO.,**

**Milwaukee, Wis.**





## **Rhodes** 7" Horizontal 3½" Vertical **Shaper**

The RHODES is applicable to a wide range of accurate machining. For light shaping and slotting where accuracy counts, the RHODES is the thing. Small in size, low in upkeep, big in economy.

---

**The Rhodes Mfg. Company**  
Hartford, Conn.

# SHAPERS

12", 14", 16"  
Plain Crank,  
16", 20", 25"  
B. G. Crank,  
either Cone  
Driven or  
through  
Speed Box.

28" and 32"  
Back Gear-  
ed Crank,  
Single Pul-  
ley Drive.



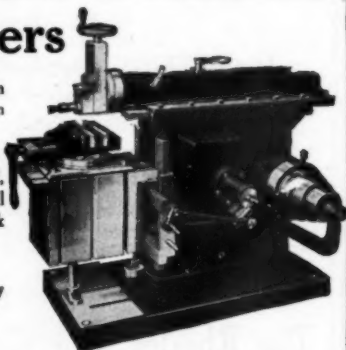
**The Smith & Mills Co.** Station B.,  
Cincinnati, O., U.S.A.

## Shapers

The best medium  
priced Shaper on  
the market.

Built in 16", 20",  
and 24" sizes, all  
back geared crank  
machines.

A few for early  
delivery.



**The Osborne & Sexton Mchy. Co.**  
Columbus, Ohio

# Redface Pulleys

Sheaves and Fly Wheels



**PERMANENT:** They are permanent, as they are not affected by age, heat, cold or moisture.

**RELIABLE:** They do not loosen up under vibration or intermittent loading.

**RUN TRUE:** They run true, steady the line shaft, and have a very small load due to windage.

**REDFACE PULLEYS** are especially adapted to use on motors, fans, pumps and special machinery.

*Catalog mailed promptly upon request*

## **Pyott Foundry Co.**

Cast Iron Pulleys, Sheaves and Fly Wheels  
328 N. Sangamon St., Chicago, Ill.

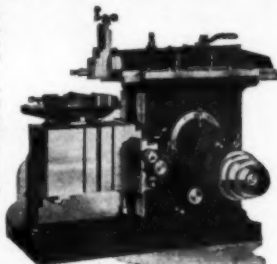
## The Columbia Quality

### Extra Heavy Crank Shapers

Combine operating convenience with weight, ruggedness and power. Quick-change feed and other time-saving features.

Ring oiling bearings. Renewable bushings—bronze where bronze is better. Outer table support. Length of stroke and position of ram easily and speedily changed. Cone pulley or selective gear speed box and back gears provide *eight speeds*.

Our Bulletin No. 7 describes sizes 16", 20", 24", 28" & 32".



**The Columbia Machine Tool Company**  
Hamilton, Ohio

## One Man And The Canton Crane



### Replace The Labor Of 6 to 10 Men

For handling and hoisting heavy pieces, castings, motors, tools, etc., to or from any part of the shop required it is without a rival. It can operate in corners where your overhead crane cannot reach. Many firms call it: "*The Handiest Tool in the Shop*". Often pays its cost merely in avoiding workmen's compensation claims caused thru accidents in moving heavy pieces about the shop.

*Many sizes. Write  
for Booklet E-8*

**Canton Foundry and Machine Co.**  
Canton, Ohio



**Terrell's  
Steel  
Lockers  
are a  
valuable  
aid to  
contentment**

A workman's locker is the one little spot in the shop which is his own. It is private. It is personal. And when that one little spot is made attractive, safe and sanitary, it is worth a great deal to him as a man and is of even greater value to the employer in dollars and cents.

Terrell's Steel Lockers are an aid to contentment, and they afford a better investment than make-shift wooden fixtures. Their first cost is their only cost, and that may be less than you think.

*You may tell us your requirements without obligation*

**Terrell's Equipment Company**  
**Hall & Division Sts., Grand Rapids, Mich.**  
Also ask about Terrell's Steel Bins and Shelving



## NORTHERN CRANES

NORTHERN "D & PL"  
Electric Hoists

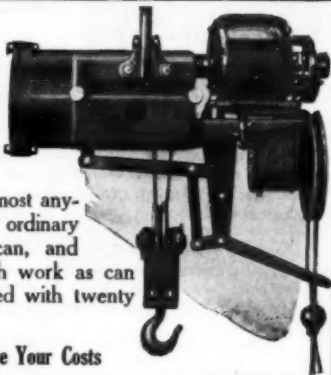


*Our Catalogs on request*

**NORTHERN ENGINEERING WORKS**

208 Chene St., Detroit, Mich.

## EUCLID HOISTS



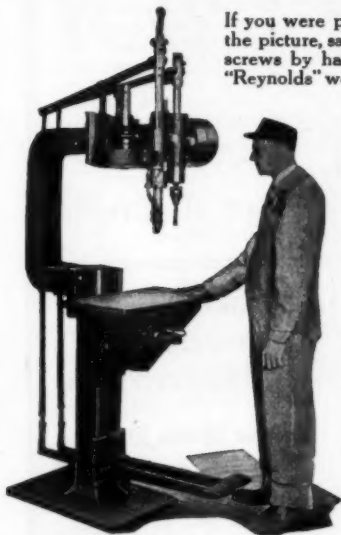
can be used almost anywhere that an ordinary chain block can, and will do as much work as can be accomplished with twenty hand hoists.

**Let Us Reduce Your Costs**

**The Euclid Crane & Hoist Co.**  
EUCLID, OHIO

# Reynolds Magazine Fed Automatic Screw Driving Machine

**Multiplies a Workman's Output  
From Three to Six Times**



If you were paying the workman in the picture, say, \$5 a day for driving screws by hand, his output on the "Reynolds" would be worth in wages from \$15 to \$30 a day — he and his machine would be worth from three to six men without it.

Can you afford to drive screws the old way when the "Reynolds" insures such a tremendous saving?

You simply dump a gross or more of wood or machine screws into the hopper, press a foot lever, and the machine automatically magazines and drives them to the required depth, at the rate of 8,000 to 10,000 a day.

Tell us the dimensions over all of your work and the gauge and length of screws you are driving, and we will send you description of the machine that best suits your requirements.

*Information costs nothing—you may find it worth a great deal*

**The Reynolds Machine Company**

**Dept. H. H.,**

**Massillon, Ohio**

# You Advance the Price

**In a few months' time the Curtis  
will have returned its cost to you**



**No. 400—Capacity: 2 Bushels**

It is pure economy to buy a Curtis. Extracting the oil from your chips and shavings will save many barrels in the course of a year, and reduce your oil bills to that extent. It is a sturdy, ball-bearing machine that requires but little attention or power. Three sizes.

*Be up-to-date in all your departments. Send for details of this economizer today.*

**Estate of Albert B. Curtis**

**Box 44, Worcester, Mass.**

## Dupont Power Hammers

**Belt or Motor Drive**

These hammers embody a design and workmanship that are unsurpassed.

*Specifications on Request*



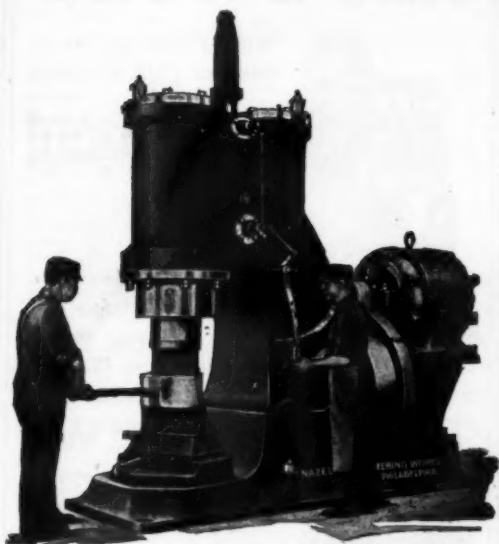
**Belt Driven**

**United Hammer Co.**

**45 Bromfield St., Boston, Mass.**



# The Nazel Air Hammer



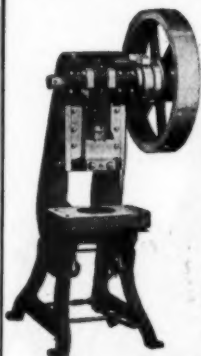
## Noted For Its Blow And Control

A self-contained unit, HAMMER AND COMPRESSOR COMBINED, built in three types, six sizes arranged for BELT OR DIRECT MOTOR DRIVER, with capacities up to 7 inches square, for all manner of jobbing, manufacturing and certain classes of drop forging.

*Write for the Nazel Hammer Book; it's yours for the asking.*

**Nazel Engineering & Machine Works,  
Niketown, Philadelphia, Pa.**

## Here Is A Press



With Plenty of Steam  
Back of THE PUNCH

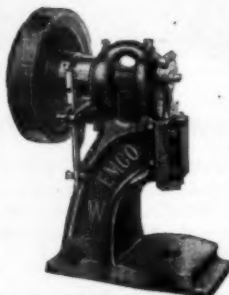
HIGH DUTY  
**ROCKFORD**  
PUNCH PRESSES

Made in straight side and  
inclinable types. Their great  
power backed by rigid design  
enable them to do the work  
you demand and stand up to it.

*Write For Catalog*

**Rockford Iron Works**  
Rockford, Ill.

## The Emco "W"



Bench Power

### Punch Press

NOW MADE IN  
 $\frac{3}{4}$ ,  $1\frac{1}{4}$  or  $1\frac{3}{4}$ " stroke

**Record Production:**

114,000 operations in  
11 hrs. by hand feed

Also Emco "V" Bench

**HORN PRESS**  
for **ASSEMBLING**

**It Won't Repeat**

*Circular on request*

**The Enterprise Machinery Co.,** 28 S. Clinton St.  
CHICAGO, ILL.

# G. A. Lewthwaite High Grade Tools

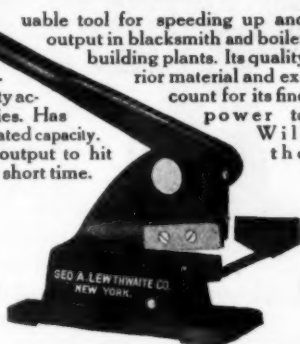
## Shear and Rod Cutter

An invaluable tool for speeding up and improving output in blacksmith and boiler shops and ship-building plants. Its quality mechanism, superior material and exceptional reliability account for its fine productive qualities. Has power to shear beyond its rated capacity. Will surely help your output to hit the high spots in a very short time.

uable tool for speeding up and output in blacksmith and boiler building plants. Its quality rior material and ex- count for its fine power to Will the

Also

Pipe Benders  
Bar Benders  
Power Presses  
Foot Presses  
Etc., Etc.



BAR SHEARS,  $1\frac{1}{4}$ " capacity and smaller.

PLATE SHEARS,  $\frac{3}{8}$ " capacity and smaller.



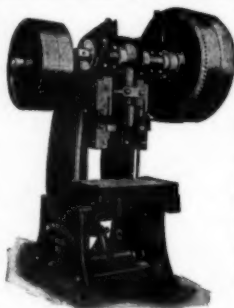
## G. A. Lewthwaite Punches and Dies

They do a maximum amount of work and make straight, clean, perfect holes. Test them out on your toughest work and they'll stand up every time. The secret lies in the special quality of steel used and in the highly efficient workmanship wrought into them.

*Glad to mail you our Catalog  
of Iron-Workers' Tools*

**George A. Lewthwaite Co.**  
116 Walker St., - - New York

## L-J Heavy Inclinable Power Press



Cut shows No. 5 Combination Geared, capacity 52 tons pressure. It embodies every modern convenience necessary for accurate and rapid production, as well as safety to operator and dies. Unrivalled for simplicity, rigidity and power.

### Our Dealers

Herberts Machinery & Supply Co., San Francisco and Los Angeles, Cal.  
Northern Machinery Co., Minneapolis  
Brown-McDonald Mch. Co., St. Louis  
English Tool & Supply Co., Kansas City, Mo.  
Stocker-Rumely-Wachs Co., Chicago  
W. J. Baird Machinery Co., Detroit  
Cyril J. Bath & Co., Cleveland, Ohio  
Reliance Mch. Sales Co., Pittsburgh  
M. D. Larkin Supply Co., Dayton, Ohio  
Joseph Beal & Co., Boston, Mass.  
Dale Machinery Co., Inc., New York  
J. L. Lucas & Son Inc., Bridgeport, Conn.

*Write to the nearest, or*

**Loshbough-Jordan Tool & Mche. Co.**  
Elkhart, Indiana

## Willard Power Presses Inclinable Open Back



**Rugged, Productive,  
Economical**

They are built for hard, constant service and feature many up-to-date improvements. Massively designed and operating with precision they have proven superior to all others for maximum productive capacity. They easily incline for operating dies which deliver their work to the surface. Blank cutting, punching, perforating, forming and bending of sheet metal is quickly and effectively performed with them.

*Want details of these efficient presses?*

**The Willard-Middletown Machine Co.**  
Cincinnati, Ohio  
Successors to The Willard Press & Tool Co.

# Spring Foot Press

*Write For Circular*



**The Taylor & Fenn Company**  
Hartford, Conn., U. S. A.

**"Great Producers"**

## **T.H.L. Front Lever Bench Punch**

**Stands Up Under  
Longest, Toughest  
Wear and Tear**

**Price \$60**

Extra Punches, 35 cents each,  
\$3.75 per dozen. Extra Dies,  
40 cents.

Capacity  $13/32''$  hole thru  $1/4''$   
steel, or  $11/32''$  thru  $5/16''$  steel.

**Weight 70 lbs.**

Adjustable gauge. Cannot lose  
alignment with die. Made of best  
materials. All parts interchange-  
able.



## **Durable Punches and Dies**

The best high grade steel, and  
*individual* tempering of each  
tool by the most efficient work-  
men account for the wide rep-  
utation they have for maxi-  
mum hardest service.

*Give them a try-out  
You'll be satisfied*



**T. H. Lewthwaite Machine Co.**  
417 East 31st St., (Est. 1890) New York City

# Marvel No. 23 All-Steel Punch, Shear and Bender

A "Marvel" for Punching, for Shearing Bars, for Notching, Bending and Cutting Angle Iron, for Bending Flat Bars, for Splitting Sheets lengthwise, etc.

Punches  $\frac{3}{8}$ " in  $\frac{3}{8}$ "—2" tht.  
Punches  $\frac{1}{4}$ " in  $\frac{1}{4}$ "—9" tht.  
Shears  $\frac{1}{2}$ "x2" bars.  
Notches  $1\frac{1}{2}$ "x $1\frac{1}{2}$ "x $\frac{1}{4}$ " angle iron.  
Bends  $1\frac{1}{2}$ "x $1\frac{1}{2}$ "x $\frac{1}{4}$ " angle iron 90 degrees.  
Bends 5-16"x $1\frac{1}{2}$ " flat bars.  
Splits  $\frac{1}{4}$ " sheets lengthwise.  
Equivalents in other sizes.  
Vertical travel of bars,  
1 lever, 7-16".  
2 levers,  $\frac{7}{8}$ ".  
40° between links.



Made in  
two sizes

A practically unbreakable machine of almost unlimited usefulness. The cut shows it set up with a row of punches and strippers, with link and leg moved back at one end to accommodate bar shear.

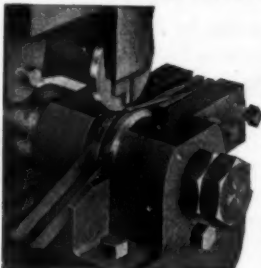
Several punches and dies may be placed at distance required and a row of holes punched simultaneously. A punch and die, a V-block bender, a shear, a notcher, etc., may all be set at the same time ready for use. The shear, as shown, may be set in the center for splitting sheet iron. Angle iron may be notched and bent square with tools all placed in machine at the same time. Various other tool combinations may be made to suit requirements.

*Better have description of this wonderfully versatile machine*

**Armstrong-Blum Mfg. Co.**  
341 N. Francisco Ave., CHICAGO, ILL.

## Over 200 Leading U. S. Firms

Use The GRAY Sheet Metal Cutter



Cutter and Feed Roll

They include: Ford Motor Co.; Pennsylvania R. R. Co.; Baldwin Locomotive Works; Victor Talking Machine Co.; General Electric Co. and Bethlehem Steel Corporation.

The world reputation of Firms like these is at once a guarantee of the high grade efficiency of the GRAY.

It makes clean, accurate cuts—does not shear. Cuts any shape easily and quickly, and at rock-bottom cost.

*Send postal for full data*

**W. J. SAVAGE CO., Knoxville, Tenn.**

Alfred Herbert Ltd., Exclusive Foreign Representatives.

## “QUICKWORK”

Registered in U.S.A. and Foreign Countries

## Rotary Shears

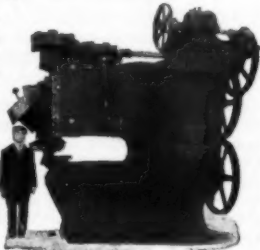
### Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in from side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

**Save 50 to 90%**

Eliminates Oxyacetylene cutting and plate planing

Write for catalogue No. 60



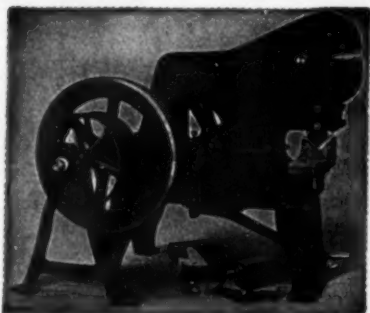
Patented June 3, 1913; Aug. 26, 1919.

**THE QUICKWORK COMPANY, St. Marys, Ohio, U. S. A.**

Cable Address “Quickwork,” “W. U.” and “General” Codes



**Punches—Shears—Bending Rolls**  
**The Beloit**  
**Combined Power Punch And Shear**



**Built in six sizes. Nos. 51, 52, 53, 54, 55 and 56**

**Direct connected motor or belt drive**

This is the best all around punch and shear in a combined machine of moderate cost. It is heavy and substantial, and amply back geared to require the minimum amount of power; is strong, compact, and easy to operate. Can be equipped with angle shearing attachment, architectural jaw, or for special work.

We are putting out a complete line of punching and shearing machinery in both power and hand tools, also light and heavy duty bending rolls.

We do not overrate the capacities of our machines.

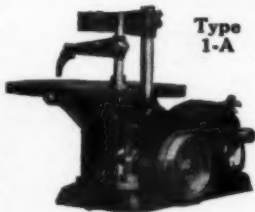
*Write for catalogue and prices*

**Hendley & Whittemore Co.**  
**100 S. State St., Beloit, Wis.**

## Thirty Days' Free Trial Of This Big Money Saver

There is a growing demand for this remarkably efficient J. & B. Filing and Sawing Machine. For the convenience of firms interested we offer it on a *thirty days' free trial*—at our risk and expense.

Cuts sawing and filing costs more than 50%. Unskilled help easily operates it. Files grooves as well as plain surfaces. Uses standard files from 3" needle to a 12" flat or bastard, and any hack saw blade.



Type  
1-A

*Here is surely a FAIR OFFER. Write*

**JOHNSON & BIDDLE TOOL CO., ELKHART, INDIANA**

## Soon Repays Its Own Cost Peter Bros. Abrasive Metal Cutter

Cuts all kinds of metal easily, perfectly, rapidly and 75% *cheaper than can be done with the hack saw, file, etc.* It prevents waste of expensive High Speed Steel in nicking and breaking. Why not let it save you the high-priced time of your toolmakers? *Doesn't draw the temper.*

**8" Size \$22.50, with C. S.**

Splendid for tool room. Cuts high-speed steel up to 1" square.

**12" Size \$60, with C. S.**

Cuts up to 2" diameter, round or square, at any angle up to 45 degrees. Ball bearing.

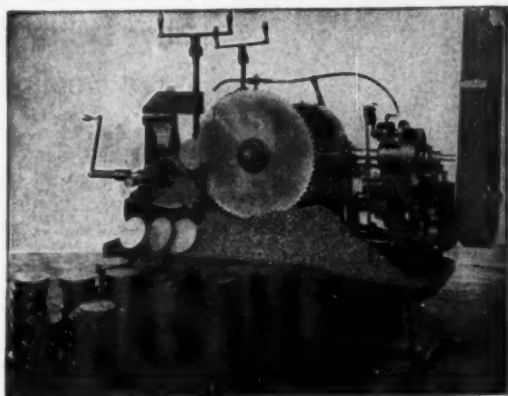
**15 Days' Free Trial**

*Write us or ask your dealer*

**PETER BROTHERS MFG. CO.**  
115 Railroad St., Algonquin, Ill.



# Cochrane-Bly No. 5 Cold Saw



**144 Blanks 5 $\frac{1}{4}$ " Diameter Cut on This Machine in 8 Hours.**

**Actual Cutting Time Was 3 Minutes and 10 Seconds Per Cut.**

**Will Also Cut in Multiple at one Time**

76 Bars $\frac{1}{2}$ " Diameter			
26	"	1 "	"
13	"	1 $\frac{1}{2}$ "	"
8	"	2 "	"
4	"	2 $\frac{1}{2}$ "	"

**Five Sizes to Suit All Requirements up to 8 $\frac{1}{2}$ " Round Bar.**

*Write for Catalog*

**Cochrane-Bly Company**  
**Rochester, N. Y.**



**Save Time  
Save Labor  
Save Tools**

**by  
Supporting your  
long stock**

On the **"ANYHITE" Adjustable Stock Support**, for Hack Saw, Drill Press, Punch Press, Pipe Machine, Milling Machine, Screw Machine, Shaper, Planer, or for Racking Heavy Shafting or Tubing.

We will send you one on 30 days' trial. Price \$15.00 for Standard Height. Special sizes built to order.

**The Will-Burt Company**

Orrville, Ohio

**"Handiest Racks" A Modern Necessity**



You could get along without them in a way before the war. But conditions have changed. Greater economy is now a *necessity*.

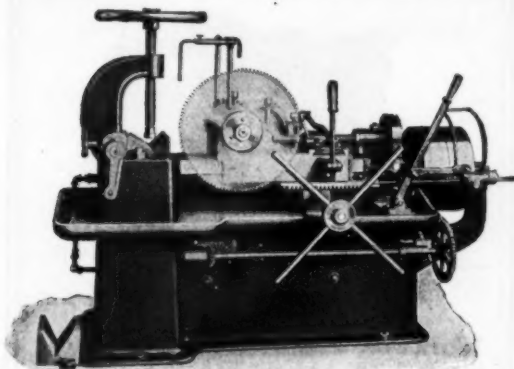
**"The Handiest Racks"**

**For Pipe, Shafting and Bars**  
save so much in space and time, and they enable you to keep your bar stock in such fine shape to count, assort and handle on or off, that they soon pay their cost several times over.

*Shipped on trial  
You don't have to keep them  
But you'll want to*

**Wm. S. Yohe Supply Co.**  
503 Mahoning Road, N. E., Canton, Ohio

# The Knowlton Metal Saw Cut-Off Machine



## Model Two

A Fast and Powerful Cold Saw with a capacity up to 7½", larger sizes and irregular shapes cut by removing vise and strapping to work table.

### Belt or Motor Drive 12 Feeds—Automatic Stop

7½" Steel cut off in 6½ minutes, 6" in 4¾ minutes, 5" in 3¾ minutes, 4" in 2 minutes, etc.

*Write for circular*

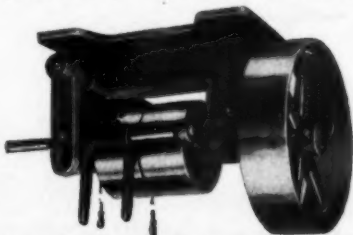
## KNOWLTON MACHINE COMPANY WESTBROOK, MAINE

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Hill, Clarke & Co., Boston  
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 San Francisco and Los Angeles  
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 Sanderland Mach. & Supply Co., Omaha  
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 The Patterson Tool & Supply Co., Dayton

## Workwell Countershafts



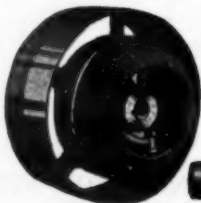
This is a high grade countershaft. The main casting is one piece, babbitted with high speed babbitt. It cannot get out of alignment, which has always been a great trouble in the old style countershafts by binding the bearings and burning them out. This trouble is entirely eliminated in our design.

These countershafts are made in three different sizes, Types G1-G2-G3.

**Workwell Engineering & Mfg. Co.**  
Dept. 3. - - 4145 W. Kinzie St., Chicago, Ill.

## Edgemont Friction Clutches

**Prevent Wasting Pulley Power**



**Enclosed Type, Self-Oiling**

These **PATENTED** Clutches were designed after exhaustive experiments and tests to stand both use and abuse in heavy, rough service. Built to stand the strain of being thrown in and out constantly and while so operating to pick up heavy loads. No springs or delicate parts.



*Without obligation, our engineering experts are at your service.*

*Send for Catalog of the "Clutch that's stood the test"*

**The Edgemont Machine Co.**  
Dayton, Ohio

# A Low-Priced Saw

A Reliable Machine for General Use  
Has Exceptional Merit



## Marvel Draw-Cut Hack Saw No. 2

With Swivel Vise that Swivels Both Ways

A general work, all-around saw of good capacity. In constant use everywhere.

The Marvel No. 2 is heavy and rigid, with bronze bearings on drive shaft. Arranged for taking up wear indefinitely, so that saw blade and frame will always be held rigidly in line. Starter and automatic stop at front of machine. Stroke adjustable 4" to 6 $\frac{3}{4}$ ". Capacity 6"x6" on long stroke and 8"x8" on short stroke.

*If you need Hack Saws or Metal Band Saws,  
investigate the "Marvel" Line. Catalog?*

**Armstrong-Blum Mfg. Co.**

341 N. Francisco Ave.,

CHICAGO, ILL.

# Tung - Stel - Bath

A quenching medium for hardening Tungsten or High Speed steels composed of scientifically prepared chemicals in lump form.

This material when placed in an iron pot and heated will melt at a very low temperature.

High Speed steel may be heated to the maximum temperatures and quenched in Tung-Stel-Bath, primarily heated to a temperature as high as eleven hundred degrees Fahr.

## ADVANTAGES ATTAINED BY THE USE OF TUNG-STEL-BATH:-

Maximum hardness and toughness.

Eliminates the necessity of drawing the temper in a great many instances.

Obviates the necessity of sand blasting entirely.

Prevents cracks due to hardening strains.

No more oxidization.

No more oil carbon deposit.

Tools quenched in Tung-Stel-Bath are as clean after hardening as they were before being placed in the fire.

*Write today for full information.*

**Bennett Metal Treating Company**  
Elmwood, Connecticut

## Thorofine GEARS

NOTHING TOO SMALL - NOTHING TOO INTRICATE

**THOROFINE GEARS** ARE GEARS OF EXCEPTIONAL ACCURACY.

### LARGE GEARS

Made with the same care that has given Thorofine small gears their unusual reputation. Our Quotations will interest you. Write today.

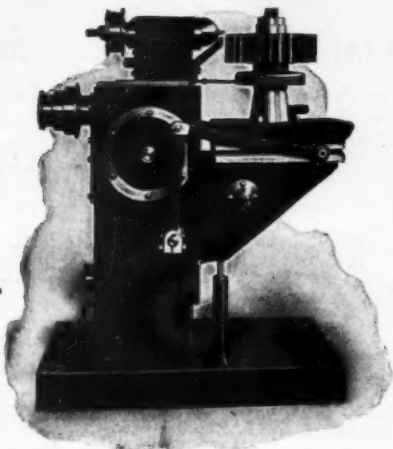
**MERKLE-KORFF GEAR CO.**

Formerly Modern Tool & Stamping Co.

313 So. Clinton St.,

Chicago, Ill.





## 25 Perfect Teeth A Minute

On the Patented "CROSS" Gear  
Tooth Rounder is Our Guaranty

It makes every tooth come a perfect half circle—any pitch—which is the only correct form for sliding mesh gears. Other forms, such as starter-ring and pinion forms, can also be rounded.

And the "Cross" is the only machine that produces properly rounded Tank and Tractor Gears *on a production basis!* Just think that over.

*If interested in rock-bottom costs, send for full data*

**Cross Gear & Engine Company**

Detroit, Michigan

Patented here and abroad; sold ONLY by us

## Armstrong Drop Forged Wrenches

Superior Design and Quality



All  
Kinds



All  
Sizes

*Catalog free*



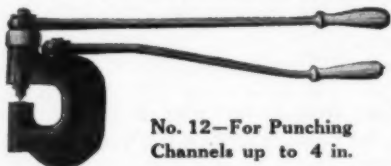
**Armstrong Bros. Tool Co.**

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

## Whitney Ball Bearing Punches

Many Types—For Many Purposes



**No. 12—For Punching  
Channels up to 4 in.**

Capacity,  $\frac{3}{8}$ " through  $\frac{1}{4}$ "; depth and height of throat, each 2"; length, 18"; weight, 11 lbs. Drop forged, heat treated throughout. The elimination of friction permits a thread pitch of two to the inch, requiring only a half turn of spindle to give a  $\frac{1}{4}$ " throw—impossible in any other make of punch.

*Write for complete Punch Catalog and Price List*

**Whitney Metal Tool Co.**

109-111 Forbes Street,

Rockford, Ill.



## Which Produces a Better Case at Less Cost and with Less Trouble

***It works with any steel***, penetrating and carbonizing to a greater depth, and therefore making a better case.

***It is not poisonous***, safeguarding your men from danger, and yourself from damage claims.

***It is economical***, because it requires no change in your equipment or process; you use it just as you do cyanide, only at a lower temperature.

***Two kinds***—one for use in the melting furnace, the other for sprinkling on hot steel.

*A trial will make you a user and booster*

### C. G. Buchanan Chemical Co.

Sta. H., Cincinnati, Ohio

# Atlas Presses

pay for themselves  
quicker today than  
ever before.

Built in all sizes for all  
work which can be  
practically accom-  
plished by hand.

**Atlas Press Co.**

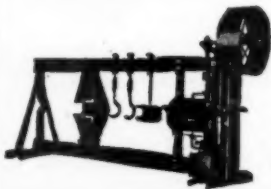
Kalamazoo, Mich., U. S. A.



## Lourie Hydraulic Presses

Are Known the World Over

We manufacture a complete  
line of standard hydraulic  
presses.



We also make  
special presses.

*Write for catalog*

**Lourie Mfg. Co.**

Springfield, Ill.

# Why Better?

## The Greenerd Arbor Press

is better because its present features are the development of many years' actual use. The machine shops of the world have been its testing plant, and out of the experiences and suggestions of practical men, have grown the present perfected designs. That it is better is proved by the fact that

## Greenerds Are Used Everywhere

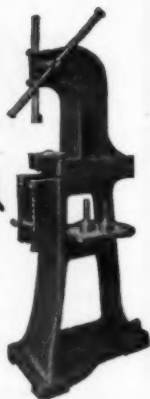
Their merit is recognized, and is reflected in their distribution, which extends to every quarter of the globe and increases year by year.

*If you would know how good the Greenerd is, ask the man who owns one. If you would know how soon you can get one, ask your dealer or me.*

**EDWIN E. BARTLETT**  
NASHUA, N. H.

*This shelf can  
be adjusted for any  
length arbor*

Stands for *Nicholson Arbor Presses* are equipped with adjustable shelves to accommodate any length of arbor or shaft. Or the shelf can be taken out entirely, without danger of misplacing it, for it is chained to the frame. Just one of the exclusive features that make the *Nicholson Arbor Press* an unusually efficient time and labor saver.



## Nicholson Expanding Mandrels

**SAVE SPACE**—A set of nine does the work of several hundred solid mandrels.

**SAVE TIME**—Instantly fit any hole, round or square, from  $\frac{1}{2}$ " to 7".

**SAVE LABOR**—No need to caliper or turn down a dozen or so of solid mandrels to get one that fits.

*Write for details of 30-day trial offer.  
No obligation, of course.*

**W. H. Nicholson & Co.**  
117 Oregon St., Wilkes-Barre, Pa.

### Agencies:

**BURTON, GRIFFITH & CO., Ltd.**  
Ludgate Square, London, E. C.

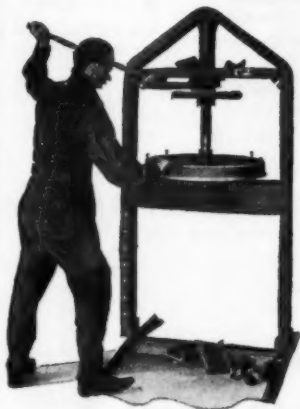
**BURTON FILS**  
68 Rue des Marais,  
Paris, France

**MONTI & OSCURO**  
Milano, Italy

**ANDREWS-GEORGE CO.**  
16 Takegawa-Cho, Kiobashi-Ku  
Tokyo, Japan

# WEAVER

## Forcing Presses



are saving time  
and money and  
improving the  
quality of work  
in thousands of

**Garages**  
**Electric**  
**Shops**  
**Machine**  
**Shops**  
*and*  
**Factories**

because of their wide range of application to both  
bulky and small work, due to their

**Great Depth Adjustment**  
**Quick Release Feature**  
**and Enormous Leverage**

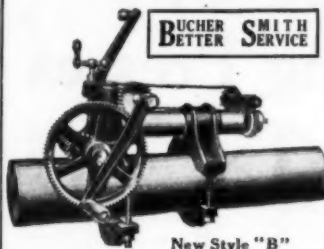
enabling the operator to exert a pressure of 28 tons  
without assistance. For complete description and  
prices, write for catalogue.

**WEAVER MFG. CO.**

HARVARD PARK,

SPRINGFIELD, ILLINOIS

## This Portable Keyseater Is Handy Cuts Costs



New Style "B"

It easily and quickly cuts clean, perfect keyways without having to move an inch of shafting. Other keyseating methods involve waste of time, labor and power.

Style "B" has six milling cutters and cuts keyways from  $\frac{1}{4}$ " to 2" wide, in shafting 2 in. to 8 in. in diam. and 12 in. long without re-setting.

*Send for our 30-day free trial offer*

**THE BUCHER-SMITH CO.**  
East Liverpool, Ohio

## 12 YEARS

In commercial use  
cutting good keyseats.

*Get Catalog O for Details*

## National Machine Tool Co.

2268 Spring Grove Ave., Cincinnati, O.

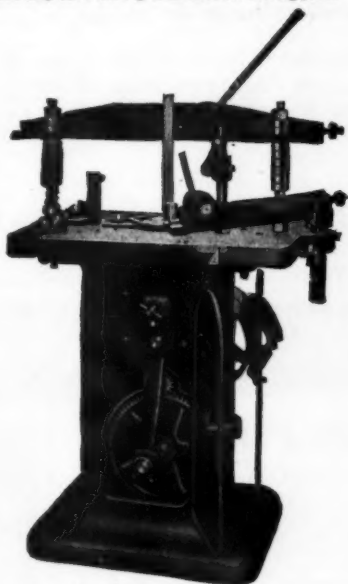




# Davis Keyseaters

**Are as much a part of the equipment of any shop or tool room as a lathe or shaper**

They save time and labor, which is the essential thing in keeping the cost of production down in these days of high labor costs, and they save the big machines for the big jobs.



**Made in two sizes**

*Send for pamphlet*

**Davis Machine Tool Co., Inc.**  
**Rochester, N. Y., U. S. A.**

## Stop the Loss From Broken Broaches!

A copy of THE BROACH OPERATORS HANDBOOK placed in the hands of your foremen and broaching machine operators will assist them to greatly reduce broach breakage.

Selection of the proper type of broach for each class of work, proper lubrication, and the set-up of the broach in the machine are discussed. Your copy free on request.

**Velco Manufacturing Company, Inc.**  
Greenfield, Mass.



### "Wear-Ever" Woodruff Chuck And Keyway Cutter

The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates making collet chucks. Fits all standard makes of milling machines, and is made in all tapers, such as Brown & Sharpe and Jarno tapers.

Let us supply you with cutters  
No extra charge for the square



**SCULLY-JONES & COMPANY,** 555 Railway Exchange Bldg.,  
CHICAGO, ILL.

# **"Catlin" Economy Keyseaters**

**Rapid — Simple — Accurate**

**Catlin No. 8  
Cuts  
Keyseats  
1-16" to 1½"**

**Stroke  
Adjustable  
Up to 13"**



A quality keyseating machine of uncommon simplicity. Its range covers the needs of the average machine shop.

It has the crank motion, which enables the cutter to enter cut during the slow part of the stroke—preferable to the usual rack and pinion drive where rate of travel does not vary.

Carries cutter bars from ½" to 1½" diameter, self-contained, and incorporating in them the tool relieving and feeding mechanism. Tools are inserted and removed without special tools.

On some classes of work keyseating operations can be duplicated right along without clamping piece or stopping machine.

*For maximum keyseating output at bed-rock cost it can't be beat. Your Address ?*

**Chattanooga Machinery Company**  
**Chattanooga, Tenn.**



## Protection

for his tools against damage, loss, rust, dirt and "the borrower" is assured the mechanic who uses a

## Gerstner Tool Case

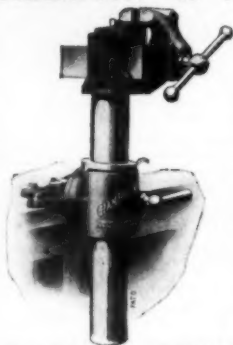
A dozen styles and 30 sizes. Satisfaction guaranteed. Catalog free.

**H. Gerstner & Sons**

200 Columbia St.  
Dayton, Ohio



## CHAMPION—A Vise with Virtue



It holds odd-shaped and ordinary pieces equally well. Clamps and releases piece instantly without jerking or damage. The "CHAMPION" can be adjusted exactly the height required for the special job in hand, insuring greater accuracy of output, and increased command over the piece. It can be swiveled or elevated to ANY desired position within its range.

Write for Catalog No. 18, illustrating the "Champion" Line of Tool Stands and other shop furniture, Toolholders, Expanding Mandrels, Power Hack Saws, Wet Tool Grinders, Emery Wheel Dressers and Cutters, Vises, etc.

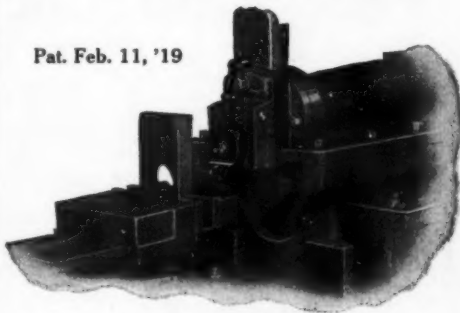
**Western Tool & Mfg. Co.,** Springfield, Ohio

# BRUNO

## Slotting Attachment

for Shaper and Planer

Pat. Feb. 11, '19



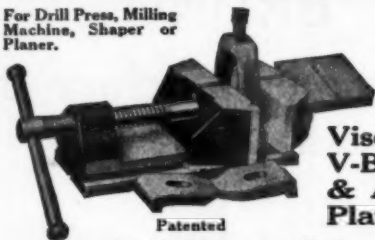
A cutting tool holder which converts your shaper into a Horizontal Slotter and makes possible the most intricate shaping such as is required for dies, jigs, gauges, keyways, slotting, etc.

*Write for circular. Dept. H.*

**H. A. MOORE CO.**  
ROCHESTER, N. Y., U. S. A.

## G-S Combination Vise

For Drill Press, Milling  
Machine, Shaper or  
Planer.



Patented

*A  
Great  
Time  
And  
Labor  
Saver*

**Vise  
V-Blocks  
& Angle  
Plate**

	No. 1.....	Dimensions.....	No. 2
Increases	5"	Jaws Open.....	7"
& Improves	2 1/2"	Depth of Jaws.....	3"
Output	8"	Width of Jaws.....	9 1/2"
	1 1/2"	Jaws Overhang.....	2"
	65 lbs.	Weight.....	105 lbs.

**30 Days'  
Free Trial**

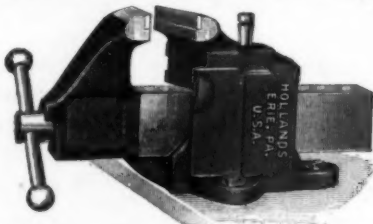
**Write for  
Particulars**

**GERMANOW-SIMON MACHINE WORKS**

68 Mill St.,  
ROCHESTER, N. Y.

## Hollands Vises

**Have made good  
for 33 years**



**HOLLANDS VISES** are made with solid or swivel jaw and stationary or swivel base, and each is a leader in its class. Machinists' Vises, Filers' Vises, Woodworkers' Vises—what do you need? Write for latest price list.

**Hollands Tool Co.,**

(Established  
in 1887)

**Erie, Pa.**



# S-C-H Furnace No. 200

**For production  
work in hardening  
steel in lead.**

**T**HIS furnace contains two elliptical pots, each 6"x 12"x13" deep. Each pot has separate, independent burners which may be adjusted to hold the pots at the proper temperatures. The port venting the surplus heat may be fitted with a rack for preheating. By gradually heating the work in this manner it is treated without shock or strain.

For successfully heat-treating reamers, taps, thread-cutting dies and tools with sharp edges, or other work which might be harmed by oxidation, this furnace is unexcelled.

*Catalog 12-H gives a complete description of the S-C-H line of 75 heat-treating furnaces. Copy sent on request.*

## THE STRONG, CARLISLE & HAMMOND COMPANY

CLEVELAND, OHIO

Branches:

Boston      New York      Chicago      Philadelphia      Detroit

# SCH INDUSTRIAL FURNACES

## **"Minster Junior"**

### **A Great Cost-Cutting Drill Press**

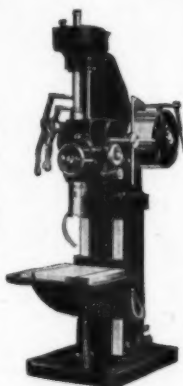
It is a high grade modern drill press capable of handling an exceptional range of operations in large production shops, from heavy boring to fast, light drilling jobs.

It has **SIX** speed and four feed changes, but by changing gears *any* speed can be obtained. Tapping attachment, compound table and adjustable motor base if desired. Ball bearings throughout insure quiet running. Combines maximum efficiency with power economy.

*Bulletin 30 Gives Full Details*

MACHINE TOOL DEPT.

**Minster Machine Co.**  
Minster, Ohio



What the Turret Lathe is  
to the Common Lathe, the

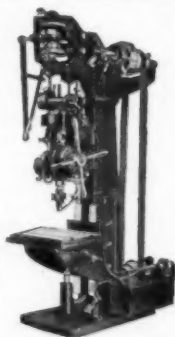
**Turner  
Turret**

is to the Drill Press

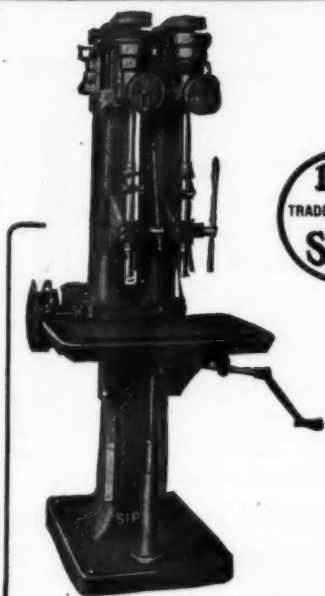
Regularly built with 4 to 6 spindles, also to order. Each spindle carries a different tool, which successively and automatically registers in precisely the same position. A tremendous cost reducer.

*Write for Bulletin FH  
and send sketch of your work*

**Turner Machine Company**  
DANBURY, CONN.







**Have You Ever Noticed**  
How Few Second-Hand  
*Sipp Quick Change Speed*  
*Sensitive Drilling Machines*

Are Offered For Sale?

**THERE'S A REASON!**

**The Sipp Machine Company**  
Keen Street, PATERSON, N. J.

**Would you like a drill  
that the spindle can  
be operated up and  
down by a foot lever  
as well as by a hand  
lever?**

A Foot Lever is very handy  
when boring wood, hard rubber  
or hard fibre.

*Send for a circular of  
this Drill if interested*

**Francis Reed Co.**

43 Hammond St., Worcester, Mass.



## **For Drilling Hard-to-Reach Holes This Tool Can't be Beat**



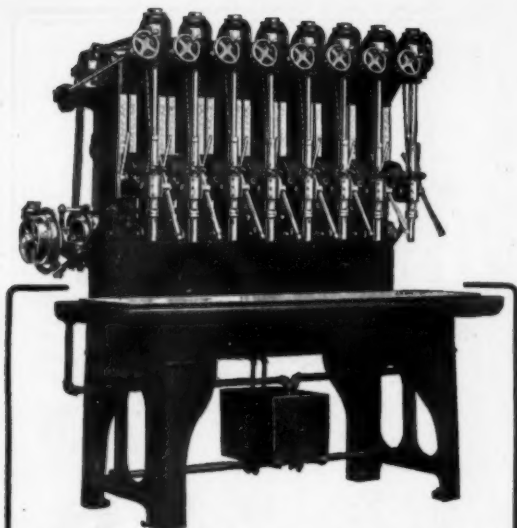
**The HARRIS OFFSET  
DRILLING ATTACHMENT**  
is invaluable in Automobile  
Plants, Railroad and General  
Machine Shops for quickly, easily  
and accurately drilling holes  
in places and corners otherwise  
inaccessible.

It also performs facing and  
counterboring operations. A-  
dapted for all standard drill press-  
es. Special sizes can be had  
for special work.

*Our Folder O. K. gives complete details*

**Harris Engineering Co.**

Bridgeport, Connecticut



## Henry & Wrights 1 to 8 Spindles, for $\frac{3}{4}$ " Drills & Smaller

*Gearless power transmission with frictionless bearings—Delivers the most power at the drill point, increases production, and saves wear and tear on the machine.*

*Scientific Feed and Speed Chart—Contained in the Catalog—the result of over two years of arduous experiment.*

*Our Catalog is a gold mine of drilling information  
Write for your copy and improve your drilling*

**The Henry & Wright Mfg. Co.**

760 Windsor St.,

Hartford, Conn.

New York Office, 136 Cedar St.

OVER-SEAS REPRESENTATIVE

ALMACOA ALLIED MACHINERY COMPANY OF AMERICA  
31 CHAMBERS ST. NEW YORK, U.S.A.

*Principal Foreign Offices: Paris, Turin, Zurich, Barcelona*



## P. & H. Drilling and Boring Machine For Large and Difficult Pieces

This P. & H. Horizontal Drilling and Boring Machine was invented for use in our own plant to drill and bore on long and bulky sections of cranes, hoists and mono-rail pieces—and other parts awkward to handle on the average type of machine. It has emphatically made good for this special class of work. It offers equal value to other firms engaged in the above or similar lines of manufacture. *We are passing a good thing along.*

Speed variations for a. c. current, 12 to 542 r. p. m.; for d. c. 10 to 445.

Tell us about your horizontal drilling problems. We may be able to help you out. Drop us a postal.

**Pawling & Harnischfeger Company**  
Milwaukee, Wisconsin

## They Never Run Hot

**"Standard" Electric Drills  
can be pushed to the limit**

An excess of power and an improved method of force-ventilation prevent overloads and burnouts. This enables operator to push them to the limit.

Fool-proof. Operators protected against shock. Built of five simple units, and very light for their high power and great rigidity. Dust-proof ball bearings.

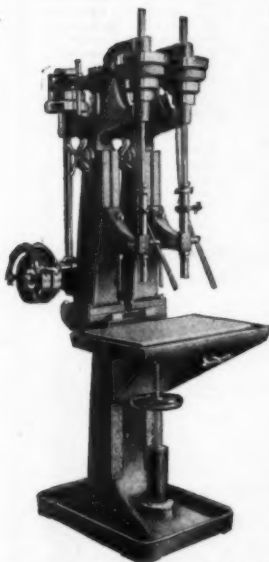
*Let our Engineering Dept.  
figure on your needs*

**The Standard  
Electric Tool Co.**  
Cincinnati, Ohio



# The Edlund—

## An Improved Quick Change Sensitive Drilling Machine



The Edlund is built with from one to six spindles. Ten ball bearings used for each spindle. It is very rigid and has ample bearing surfaces.

A straight endless belt eliminates the objectionable quarter turn. Belt may be shifted from either side of machine.

High carbon steel spindle turned and ground to size, has two driving spines fitted into grooves on each side of it. These hold spindle in central position, reducing wear and friction to a minimum.

Unusual power is obtained from the large diameter of drive and cone pulleys.

Four speed changes: 510, 816, 1573 and 2038 r. p. m.

*Let us know something of your drilling output problems  
We believe we can serve you to especial advantage*

### Edlund Machinery Company, Inc.

260 Huntington Ave.,

Cortland, N. Y., U. S. A.

It's  
A  
Leader

MUELLER  
RADIAL DRILL

In Feb. 1902—Nineteen years ago  
Mueller Radial Drill No. 1 Lot 1

was shipped. It made good, and so have  
all the thousands of other Mueller Radial  
Drills that have gone into service in the  
past nineteen years. There are good  
sound reasons why the discriminating  
user insists on

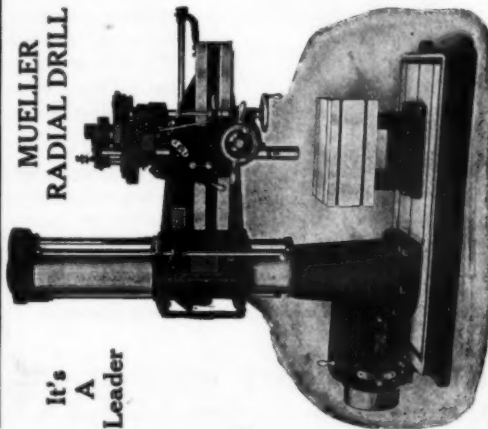
## Mueller Radial Drills

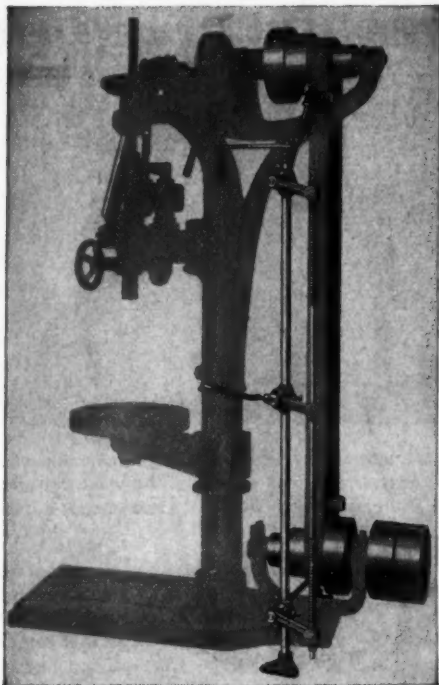
*The proposition is worth investigating*

The Mueller Machine Tool Company  
Radial Drills and Lathes.

ESTABLISHED 1902

CINCINNATI, O.





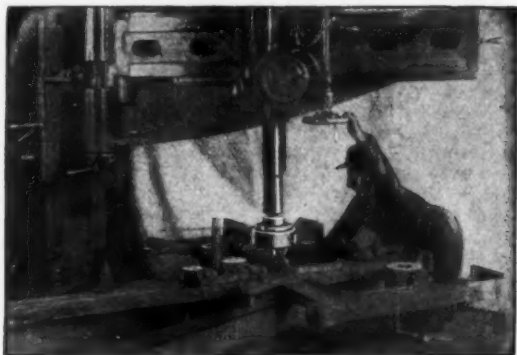
Instant changes of speed for  
drill presses increase production  
and reduce compensation to injured  
employees.

*Details in Circular H-D*

**The Kremer-Cummins Machine Company**

1833-35 East 55th St., Cleveland, Ohio

# Mummert-Dixon Facing Heads



Here is a man facing bosses on a large frame and drilling the holes with only one setting of the work. Perfectly simple and easy with a Mummert-Dixon head; a difficult and costly job without it.

This is only one of many applications of this head, which is a time saver and a trouble reducer, wherever it is used. They attach to milling machines, lathes, drill presses, boring machines—anything with a spindle or that can drive a bar. The cutting tool they carry—an ordinary lathe tool—is automatically fed across the face of the head, either in or out, the operation being practically the same as facing on a lathe. It combines accuracy with speed, facility of adjustment with a wide adaptation. For spot facing or any work of that nature, it is without an equal for economy.

*Let us show you some of the many ways it can be used to save money.*

**MUMMERT-DIXON CO., HANOVER, PA.**



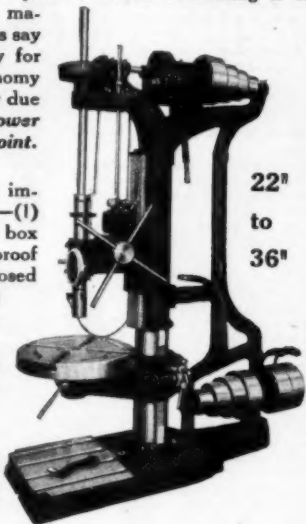
# The "AURORA" Drill

Unrivalled For 100% Economy Output

Its unusually large pulley diameter and the ratio of its gearing explain its great pulling power at the drill point. This distinctive improvement gives it a clear lead over all competitors. After submitting it to strenuous tests, machine tool experts say that its capacity for maximum economy output is largely due to its *pulling power at the drill point.*

Other exclusive improvements are:—(1) Centralized feed box control; (2) Fool-proof table; (3) Enclosed positive gears; (4) Automatic release worm-wheel; (5) Patent Tapping Attachment.

Its superior PULL is only equalled by its CLOSE PRICE.



*Without obligation, send for full description and price*

## The Aurora Tool Works

Aurora, Indiana, U. S. A.

# Model "E-50"

## Sensitive Bench Drill Press

This 2-speed, direct motor drive, high-speed ball bearing drill is especially designed to care for all work, ranging from the smallest to a  $\frac{1}{4}$ " hole.

Standard speeds 2,100 and 6,000 R. P. M.

Main spindle is heat treated and ground to size; it is guided through a quill with support at each end in an annular ball bearing.

End thrust is taken up by an end thrust ball bearing under feed arm.

A quick adjustable table has a working surface  $5\frac{1}{2}$ "x5", and will take work up to  $4\frac{3}{8}$ " in height.

Surface of table is ground to insure accuracy.

Table has a self-cleaning taper, which keeps the precisely ground main column free from chips, and serves also as a guard to prevent injury to column.

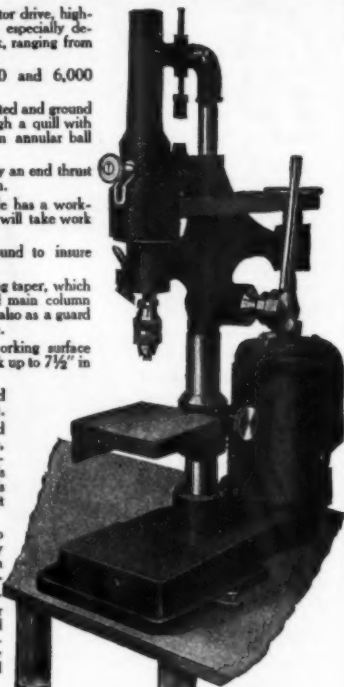
Base has a ground working surface 4"x6", and will take work up to  $7\frac{1}{2}$ " in height.

Base has oil groove and self-cleaning column support.

Your attention is called to another special feature, which is a spindle lock enabling quick changes of drills without the operator's hands coming in contact with belt or pulleys.

An idler pulley takes up any belt stretch which may occur in the endless woven canvas belt, without impairing sensitiveness of machine.

Front pulley and upper part of spindle are guarded by a semi-tubular guard insuring safety. Machine may be operated either by hand or foot control.



Height over all.....24"  
Base..... $7\frac{1}{2}$ "x18"  
Diameter of spindle..... $7/16$ "

Spindle feed..... $2\frac{1}{4}$ "  
Weight.....62 lbs.  
Will drill to center of a 6" circle.

**The High Speed Hammer Co., Inc.**  
Dept. 14

Rochester, N. Y.

# Thor

## Portable Electric Drills

### Super-Power

Super-powerful—light and easy to handle—speedy and economical—that's the THOR Drill. The extraordinary power is put in the special motor by several distinctive THOR features. And it is absolutely impossible to stall a THOR motor up to its full rated capacity.



THOR Drills save 80 per cent on the cost of drilling—one in your service will pay for itself in a month. Let us show you the merits of the THOR *Super-Power* Electric Drills—investigate our agency proposition.

**Agents Wanted**

Jacobs Chucks used as regular equipment

## Independent Pneumatic Tool Company

General Offices: 600 W. Jackson Blvd., Chicago  
New York, Philadelphia, Pittsburgh, Cleveland, Boston,  
Detroit, St. Louis, San Francisco, Birmingham, Montreal, Toronto



**It Pays to  
Specialize**

**SPEED  
12,000  
R. P. M.**

**No Vibration  
No Heating**

***Ask for full  
Information***

**Our  
No.  
1/2**

***Avey***

**BALL BEARING  
DRILLING Machine**

is specially designed for very  
light drilling where speed is  
the essential rather than power.

**Eliminates Twist Drill  
Breakage**

because the drill cuts so fast that  
feed pressure does not break it.

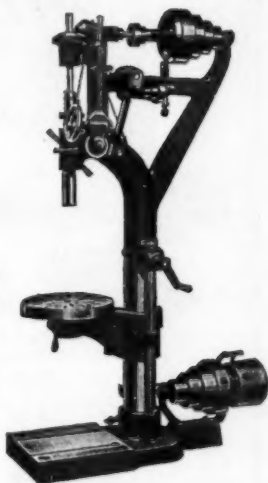
**The Avey Drilling Machine Company**  
**Cincinnati, Ohio**

# The NEW Silver 20" Drill

## New Exclusive Improvements

The 12" Spindle traverse is greater than that of any other Drill of the same type.

Specially adapted for re-boring auto cylinder blocks.



Dimensions of the "NEW SILVER" compared with the "OLD":

	New Style	Old Style
Height.....	75"	68 $\frac{1}{4}$ "
Vertical Travel of Spindle.....	12"	10"
Vertical Travel of Table.....	17 $\frac{1}{4}$ "	16"
Distance from Spindle to Base.....	42 $\frac{1}{4}$ "	41 $\frac{1}{4}$ "
Distance from Spindle to Table.....	28 $\frac{1}{4}$ "	26 $\frac{1}{4}$ "
Shipping Weight.....	860 lbs.	780 lbs.

The NEW IMPROVED SILVER DRILL, with its special exclusive features, bids fair to surpass the enviable record of the "OLD SILVER" for high grade productive efficiency. It is equally suited for both fine tool room and general machine shop operations. Base and table are planed absolutely square with spindle, greatly increasing its utility in the garage. **Made in four styles.**

*Send for details of this New All-Purpose Drill*

**The Silver Manufacturing Co.**

Box 295, Salem, Ohio, U. S. A. Founded 1854  
LONDON PARIS BRUSSELS NEW YORK GENOA SYDNEY CAPE TOWN



**No. 1 Ten Inch Sensitive  
Bench Drill Press**

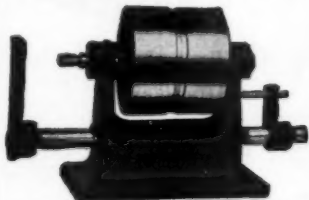
## Burke Quality Excels on Fine Points

Machines of  
**Burke Quality**  
are never built  
with any name  
cast on the  
frame but our  
own—

### PRICES

Without swing-	
ing table.....	\$24.
With swinging	
table.....	\$28.
Motor Driven	
.....	\$65 to \$85.

## THE BURKE Friction Driven Tapping Machines

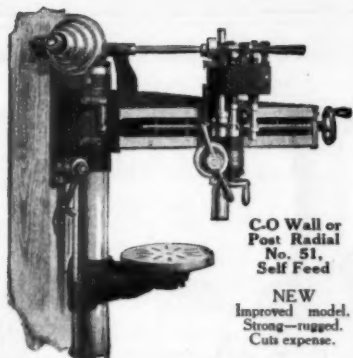


**Eliminate all  
shock to the  
tap and save  
95% of your  
tap breakage**

The most efficient machines made for work within their capacity. They are complete in themselves, yet cost less than the average tapping attachment.

*Send us samples or drawings of your tapping  
jobs and let us give you production estimate*

**The Burke Machine Tool Co.**  
297 East 16th St., Conneaut, Ohio



**C-O Wall or  
Post Radial  
No. 51,  
Self Feed**

**NEW**  
Improved model.  
Strong—rugged.  
Cuts expense.

## **Quality and Range of Work**

### **Wall or Post Radial Drill**

The lowest priced drill of its kind; with a drilling capacity of 1½" in a circle to 30" or 42"—and yet has all the features of high speed, high quality drills.

### **Canedy-Otto Equipment**

is made by men who have acquired unusual skill in a plant that has been operated for thirty years with one great objective—that of making every part and every machine the best of its kind ever produced.

And to maintain this ideal and serve our customers best, to protect them and maintain our responsibility, we make every casting, every finished part, every nut and bolt in our own plant.

## **Canedy-Otto Mfg. Co.**

*World's largest builders of Automotive Equipment*

Dept. HMT

**Chicago Heights, Ill.**

## Reducing Drilling Costs

Is Easy With the SELLEW



### These Adjustable Drill Heads

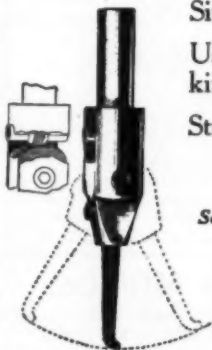
enable you to drill  
three holes as quickly  
and as easily as one  
hole—a three-to-one  
saving that's worth  
while.

Special Drill Heads,  
with fixed spindles,  
gladly made to your  
order. *Let us cooperate.*



**SELLEW MACHINE TOOL CO.,** Pawtucket,  
Rhode Island

## E-Z-SET Boring Tool



Simplest and Best.

Use for Boring of any  
kind, anywhere.

Straight or Taper Shank.

#### 4 SIZES

5/16, 3/8, 1/2, 5/8" Tool Bits

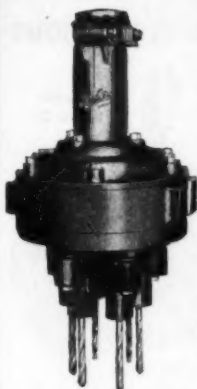
*Sent on 10 days' approval*

THE

**B. & W. Tool & Die Co.**

102 St. Clair Ave., N. W.  
CLEVELAND, O.





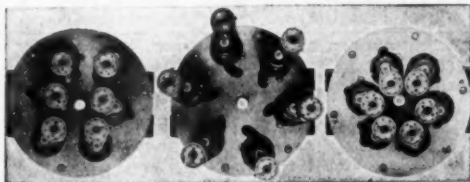
## The Buhr Multiple Spindle Drill Head

Makes a Multiple Spindle Machine out  
of your Single Spindle Drill Press

Made with 3 to 12 spindles.

The arms can be rotated or moved  
in and out, and set-ups can be  
made for circular, square, rectangu-  
lar or staggered positions.

Saves shifting the piece, which  
often takes more time than the  
actual drilling, and insures absolute  
duplication of pattern.



To be able to drill in one operation, on a single spindle drill  
press, from 3 to 12 holes, arranged in almost any desired  
position, is a tremendous economy. If you have any work  
which would enable you to take advantage of this great  
saving in time and labor, you should not be without the  
Buhr Multiple Spindle Drill Head one day longer than is  
absolutely necessary.

*May we furnish you with ALL the facts? Your address?*

**Nelson-Blanck Mfg. Co.**  
Detroit, Mich.

New York Office: Grand Central Palace

## "VICTORS" Are Victorious

Victor Self-Opening Die Heads are victorious because when once they are used they drive both solid dies and other makes of self-opening die-heads entirely off the field. They're so built they insure bearing to back of chasers *their entire length*. This prevents tilting and cutting of tapered threads. Its **AUTO-MATIC** action permits the operation of two or more machines at the same time.

Sizes  
¾" to 6"



*Why not let it save you  
some good golden dollars?*

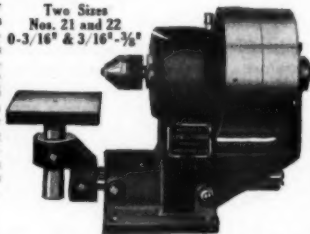
**VICTOR TOOL COMPANY, Waynesboro, Pa.**

## "B-T" New Tapping Machine

**Will Reduce Your Tapping Costs**

Built into it are not only many improvements found in earlier machines but it possesses valuable exclusive features which put it easily into the **A1 CLASS** for superior production efficiency. Drive is very sensitive, and reversing action is instantly automatic—twice as fast as the tapping speed. *Its price will surprise you.*

Two Sizes  
Nos. 21 and 22  
0-3/16" & 3/16"-3/8"

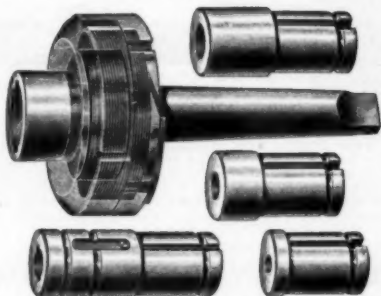


*Better write for  
complete details*

**Bicknell-Thomas Company**  
90 Wells Street, Greenfield, Mass.

# Solves Your Tapping Problem

No Lost Time, No Broken Taps  
No Waste, Anywhere



The Safety Friction Drive Drill and Tap Holder  
Made in Four sizes, 0 to 2½"

Drives a tap at full speed to the bottom of a hole—and stops it there, or anywhere it runs against anything to break it; insures you against loss from tap breakage.

Saves operator's time, because he can change from tap to drill, or back, without stopping the spindle; speeds up production and reduces cost.

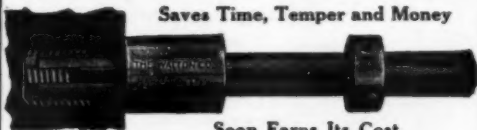
If you are trying to tap without it, you are simply throwing money away. Please don't do that.

*Give it a tryout instead*

**The Beaman & Smith Co.**  
Providence, Rhode Island

## A Simple, Inexpensive Device For Removing Broken Taps

Saves Time, Temper and Money



Soon Earns Its Cost

When a tap breaks the removal of its broken end by the **Walton Tap Extractor** is simplicity itself. You merely insert the fingers of the tool into the flutes of broken end and with one or two twists the trouble's over. Easy isn't it? How's that for preventing waste of high priced skilled labor? Once you've seen how easily it operates without any damage to the thread you'll never be without one or more in your shop.

*Send for one on approval—write us today*

**THE WALTON CO., Hartford, Conn.**



## "W-o-o-d-s-t-o-c-k"—that spells Modern Tap Insurance

THE **WOODSTOCK SAFETY TAPPING CHUCK** fully protects your operators against trouble thru tap breakage when they strike blind holes, soft and hard spots, etc. Its friction drive is automatically released the instant tap binds or reaches bottom of hole.

Friction from spring pressure is uniform and prevents loss of power from slipping or wear. Made in Five Sizes. Used in U. S. Ordnance and Navy Depts.

**90% of taps BREAK—the Woodstock cuts out that waste.**

*You may have one for a 30 Days' Free Trial*

**Peter Bros. Mfg. Co.,** 115 Railroad St.,  
ALCONQUIN, ILL.

# "R-S" Friction Driven Tapping Machines



## Vertical Tappers

Equipped throughout with SKF thrust bearings. All annular bearings of phosphor bronze. Spindle travels to and from the work. Floor type only. Sizes,  $\frac{1}{4}$ " and  $\frac{1}{2}$ ".

## Horizontal Tappers

Efficient and time saving. Can be direct connected to motor. Sizes,  $\frac{3}{16}$ ",  $\frac{5}{16}$ " and  $\frac{5}{8}$ ". Bench or floor type.

## Radial Tappers

Reduce handling of heavy auto and machine tool parts. Top-notch manufacturing machines that increase output and profits. Capacity of  $\frac{1}{2}$ " in steel.

## The Friction Drive

is under perfect control and highly efficient. The instantaneous reversing mechanism prevents breakage of tools.

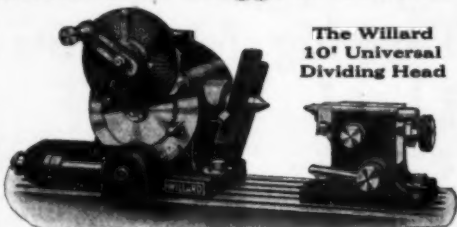
*Our Tapping Machine Bulletin gives full information. Send for it today—it's interesting*

**Rickert-Shafer Company**

1110 Cherry Street,

ERIE, PA.

## Built For Rugged Service

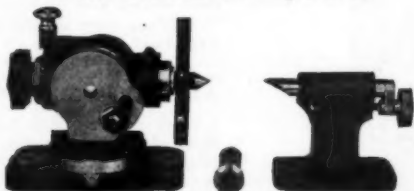


**The Willard  
10' Universal  
Dividing Head**

Divides any job on a plain milling machine. The graduated swivel head adjustable at any angle between 10 degrees below horizontal to 10 degrees beyond vertical. Clamping device is specially rigid. Spindle has No. 10 B. & S. taper and is made of the highest grade steel, hardened and ground. Head and tailstock centers made of best tool steel. Complete index plates. All parts interchangeable. Made right or left hand. *Full details on request.*

**THE WILLARD-MIDDLETOWN MACHINE CO., Cincinnati, O.**  
Successors to The Willard Press & Tool Co.

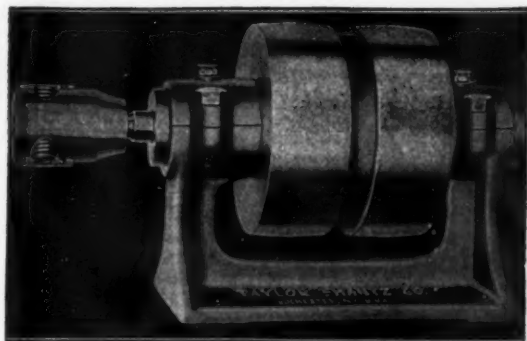
## The W. & C. Dividing Head Is An Unusual Money Saver



This low-priced Dividing Head attached to a Hand Miller not only enables you to turn out all kinds of straight milling, but permits you to reserve your expensive Heavy Duty Universal Millers for purely big milling operations.

*Why not let it save you many good dollars?*

**WHITING & COMSTOCK,** 32 Union Place,  
HARTFORD, CONN.  
Export Department, 77 Broad St., New York City



## **T-S Bench Tapping Machine**

**0 to 5-16" Capacity**

**Will save you many dollars  
with an outlay of only a few**

**Price \$25 Complete**

**F. O. B. Rochester, N. Y.**

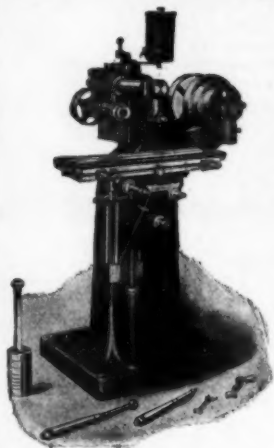
**Fully equipped, including Jacobs Chuck.  
No Extras. Rapidly taps all metals of  
medium thickness with minimum breakage.**

**Taylor-Shantz Company**

**480 St. Paul Street,**

**Rochester, N. Y.**

No. 1 U. S. Improved  
Hand and Weight Feed **Milling Machine**



There are many milling operations which our Hand Miller will do in much less time and at far less cost than can be done on large, costly milling machines.

This applies particularly to the milling of small parts.

The U. S. No. 1 is a hand miller of quick adaptability and wide range, with more power than any similar machine of equal size anywhere, making it an exceptionally useful tool in any shop.

The vertical and horizontal feeds are independent and permit the work being held close to table, so that it may be used as a profiler. The vertical lever feed being independent from the table and the head accurately counterbalanced, light milling work can be done on long or heavy pieces without danger of breaking cutters. The table is operated by hand lever, also crank feed with rack and pinion. A weight attachment permits head and table to be fed automatically. There are adjustable stops for both table and head. All in all, the U. S. Hand Miller is a machine which you may find it quite profitable to thoroughly investigate.

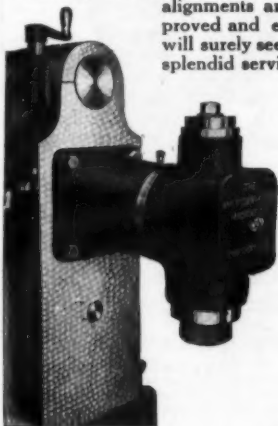
*May we mail you the full particulars?*

**The United States Machine Tool Co.**  
Cincinnati, Ohio, U. S. A.



# AMERICAN UNIVERSAL BACK GEARED MILLER

Ours is a top-quality, massive Miller, easily operated and dependable. It stands up under the heaviest strains, has ample bearings, and all alignments are true. For improved and enlarged output it will surely see you through by its splendid service.



Swivels in a full circle and is graduated in degrees.

Distance from column, 10½".

Height from Table 11½".

## Swiveling Vertical Milling Attachment

This Milling Attachment swivels in a complete circle, is graduated in degrees, and is easily applied to column for all kinds of vertical milling. The face of all columns is drilled and tapped to receive attachment at any time. Greatly extends the range of the Miller's capacity.

*Get our Illustrated Folder for the complete description*

**The American Milling Machine Co.**  
Cincinnati, Ohio, U. S. A.

## This Power Feed Miller \$220.

Why buy a heavy, cumbersome and expensive Milling Machine, when you can do your small milling operations to better advantage and much more rapidly on a light Burke Milling Machine?

Catalog shows other sizes of Milling Machines with hand or power feed, with or without overhanging arm, either bench or column type.



**BURKE No. 4**

**The Burke Machine Tool Co., 297 E. 16th St. Conneaut, Ohio**

## Why Keep Your Production Down

and continue to waste money? This is practically what you are doing when you use cheap, inaccurate Index Centers, when a few dollars more will buy a **DICKOW INDEX CENTER**, which is absolutely dependable, and guaranteed for its high degree of accuracy.



**PROMPT  
DELIVERY**

Stood the  
test for  
14 years



Over 2000 satisfied users  
all over the world.

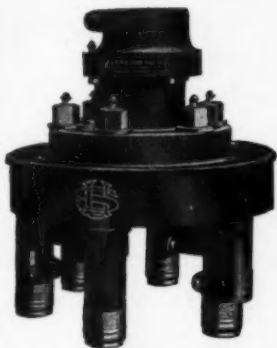
Your old Index Centers  
taken in trade.

Also Manufacturers of "DICKOW SUPERIOR EIGHT"

Dependable and Accurate. Write us today for complete description

**FRED. C. DICKOW MACHINERY CO., Not Inc.**  
3504-3512 W. Lake St., CHICAGO, ILL.

**U. S. Patented Adjustable  
Multiple Spindle Drill Heads  
Save Much Time and Money**



**Send us  
a lay-out  
of your  
drilling  
operations  
and let  
us show  
you how  
much we  
can save  
you**

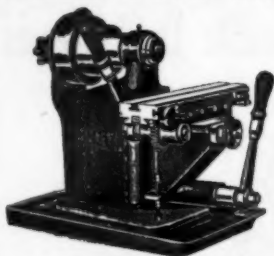
**Our Nos. 1, 2, 3 and 3-A Standard Adjustable Drill Heads are furnished with two to six spindles—special Adjustable Heads to order. They have a double adjustment of spindles, a patented feature which permits drilling in squares, triangles, rectangles, ovals, straight line work and odd or staggered. The No. 4 has four spindles, with single adjustment for drilling holes equally spaced in multiples of four in pipe, fittings, flanges, etc.**

**Also Fixed Spindle Heads of any Practical  
Type Made to Order**

*Send us sketches or blue prints of your work and let us  
quote on your requirements. The obligation is all ours.*

**The United States Drill Head Co.  
Cincinnati, Ohio, U. S. A.**

# Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

*Send for descriptive circular*

**The Carter & Hakes Machine Co.**  
West Winsted, Conn., U. S. A.

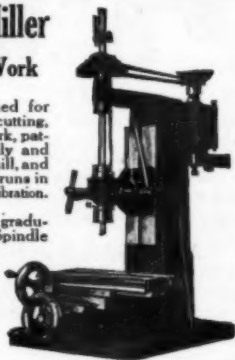
AGENTS—for New England and New York, Hill, Clarke & Co.  
WESTERN AGENTS—Marshall & Huschart Machinery Co.,  
Chicago, St. Louis, Indianapolis.

## A High-Speed Miller

**For Small, Accurate Work**

THE "CLOUGH" is designed for small work like steel letter cutting, small die sinking, small tool work, pattern work, etc. It will readily and easily drive a  $\frac{3}{16}$ " drill on end mill, and on light cuts  $\frac{1}{2}$ " drill. Spindle runs in ball bearings, thus eliminating vibration.

Table is 12"x3". Screws are graduated in 1000ths of an inch. Spindle has No. 5 B. & S. taper, and is provided with adjustment to take up all wear. Electric motor driven from 110 v., a.c. lamp socket.



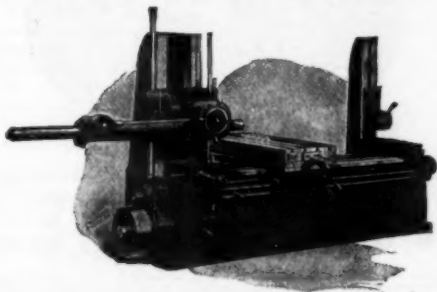
*Write for descriptive circular*

**R. M. CLOUGH,**

**Meriden, Conn.**

# The Lambert Horizontal Boring, Milling and Drilling Machine

**Extremely Simple—Wonderfully Accurate  
Under Quick and Easy Control of Operator**



Extreme simplicity and precision are the salient features of this modern machine, combined with unusual convenience and productiveness. Quickly controlled by two levers which slide along the horizontal bars—one starts, stops or reverses any feed, and the other starts or stops the bar.

Bronze bushings and steel gearing used thruout the machine. It is arranged so left hand millers and cutters may be used when required. Bed permits operator to get close to his work. Construction of head affords greater range for boring or milling from table to center of bar. Spindle head enables both facing and boring to be done at the same time. Verniers furnished for table cross feed on request.

*Make its better acquaintance. May we send Folder?*

**Carroll Foundry & Machine Tool Co.**

**Bucyrus, Ohio, U. S. A.**

# Abbott Steel Bearing Balls

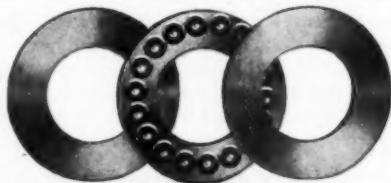
High Grade—Highly Finished



We shall be glad to have your inquiries and make estimates

**The Abbott Ball Company**

Elmwood District, Hartford, Conn.



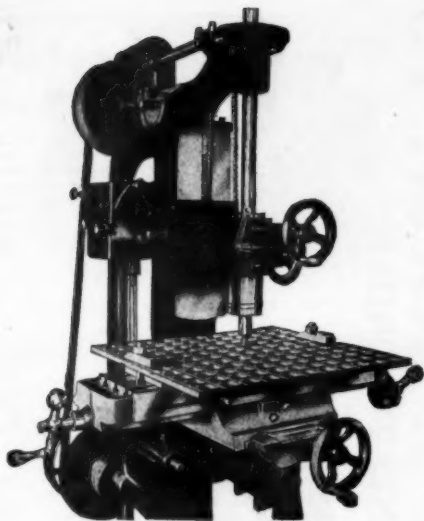
## GWILLIAM THRUST BEARINGS

*Flat or Grooved Races  
from 1/4" Shaft Dia., Up*

**ONE BEARING—OR ONE THOUSAND**

**THE GWILLIAM COMPANY**

23 FLATBUSH AVE., BROOKLYN, N. Y.



## Machining Moulds On a Knight

You will find all four sizes of the Knight Milling and Drilling Machine adapted for all kinds of difficult work, including the machining of intricate moulds, as shown in cut.

This particular job looked like a poser to the whole shop force until it was put on a Knight—and then it was easy. You will find Knights are standard machines to produce on a quantity basis, and the right tools for exceptionally hard machining stunts. Let us send you full information.

### W. B. Knight Machinery Co.

3920 W. Pine St., St. Louis, Mo.

# CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and  
Coventry Chains, Block, Roller and  
High Speed Silent types on hand

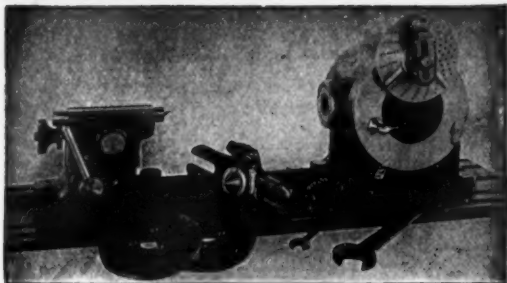


*CATALOG*

CULLMAN WHEEL CO., CHICAGO

1359 ALTGELD STREET





Plain Index Centers Swing 10" Diam.

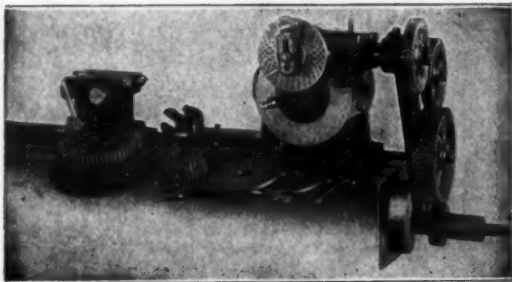
## SIMMONS OF ALBANY

These Dividing Heads or Index Centers may be used on any milling machine; are well designed; materials are the finest obtainable.

The Universal Index with Spiral Cutting Attachment is a quite recent development and will be found remarkably useful in any tool-room. Let us tell you more about these accessories.

**SIMMONS MACHINE CO., Inc., ALBANY, N. Y.**

BRANCHES: 801 Singer Bldg., New York, 86-88 Exchange St., Buffalo, N. Y.  
Albany and Buffalo Warehouses



Universal Index Centers with Spiral Cutting Attachments

## COOPER UNIVERSAL JOINTS FLEXIBLE COUPLINGS

**"You Can't Break Them  
Or Wear Them Out"**



Smooth exterior.  
Neat appearance.  
5 Simple parts.  
Large oil space.  
Working surfaces  
case hardened.  
No limit to size.



PATENTS

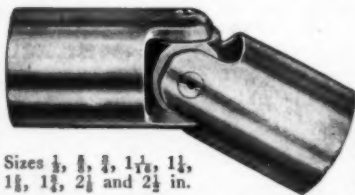
Guaranteed stronger than shaft at any angle.

Joints already bored to fit your shafts from  $\frac{1}{4}$ " to 2" carried in stock for immediate delivery.

*Ask us to send you one for inspection and test.*

**Cooper Flexible Transmission Co., Inc.**  
8th Ave. & 18th St., Brooklyn, N. Y.

## Self-Oiling, Dirt-Proof "Giant" Universal Joint for Heavy Duty



Efficient to  
an angle of  
45 Degrees

Vanderbeek  
Universal  
Ball Joints  
for higher  
angle drives

Sizes  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{8}$ ,  $1\frac{1}{2}$ ,  
 $1\frac{3}{4}$ , 2,  $2\frac{1}{2}$  and 3 in.

Wearing contacts are of hardened steel, the stem ends are strong and well braced, and the whole design is so strong and carefully constructed that it will safely drive well over its rated capacity. *Glad to have you try it out.*

**Ainslie Machine & Tool Works**

Successors to Vanderbeek Tool Works

HARTFORD, CONN.

OVER 50,000 MILES  
NOW REPORTED ON

**“WHITNEY”**

*High Efficiency*

FRONT END  
MOTOR CHAIN DRIVES

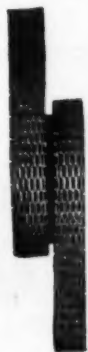


AND STILL  
IN GOOD  
CONDITION.

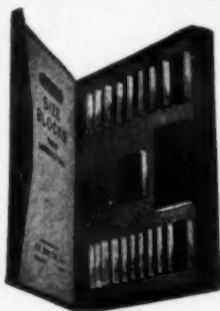
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Interchange-  
able on the  
Sprockets  
Furnished  
with the Car

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The Whitney Mfg. Co.  
HARTFORD, CONN.



**Insure That Extra Accuracy By Using**



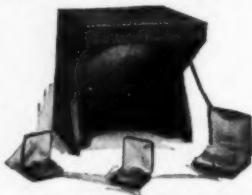
## **Size Blocks**

They are invaluable for setting up work on planer, shaper, miller, etc. The price is so moderate it would pay you to have them checked out freely from the tool crib like drills, taps, etc. *They Save Costly Master Gauges.* A table helps you get any required dimension.

*Once Used—Always Used. Full Details On Request*

**A. F. WAY CO., Inc., Hartford, Conn.**  
Export Department, 77 Broad St., New York City  
*Makers of "LOWAY" Sine Bar and Sine Squares*

## **VAN KEUREN Modern Measuring Tools**



**DO YOU REALIZE,—**  
that Light Waves will enable you to measure,—  
more rapidly,—Plug Gages,  
Steel Balls and Combination  
Gages?

Besides, it will mean something to you to have at your command,—the most accurate of all measuring facilities.

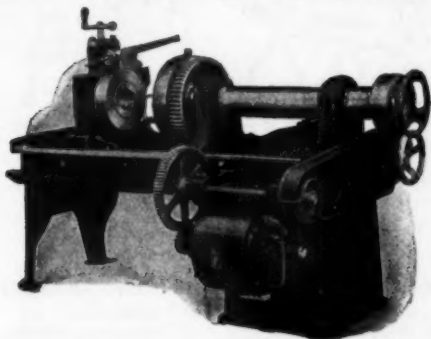
**The Van Keuren Light Wave Measuring Outfit.**

*Write today for details.*

**INVESTIGATE VAN KEUREN—**  
Plug Gages, Combination Reference Gages and Microgages.

**THE VAN KEUREN CO.**  
362 CAMBRIDGE ST., ALLSTON, BOSTON, MASS.

The *right* pipe machine will be one of our 17 styles and sizes



(No. 3 Peerless. All Gears are Covered)

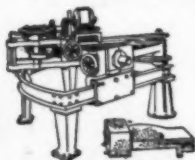
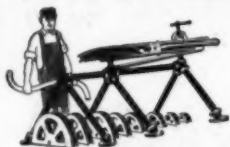
**E**VERY B. & K. Pipe Threading Machine is built to give top-notch service—maximum production, accurate work, with costs down to the minimum. We have been specializing for many years on this kind of machine, and our long experience and record of success gives us every confidence that we can equip you *right*.

All B. & Ks. are equipped with a gear box drive for obtaining the proper threading speeds. This eliminates all uncertainty or guess work in selecting the right speed for threading each size of pipe. A rotary oil pump supplies oil to both the dies and cutting-off tool. Dies can be changed without removing a screw. And there are other advantages.

*For the complete story read our Catalog  
B. & Ks. thread pipe from  $\frac{1}{4}$  to 18 in. diameter*

**Bignall & Keeler Machine Works**  
Edwardsville, Illinois

## Cold Pipe Bending Machines



### Hand or Motor Operated Standard of the World

Bends all sizes of COLD pipe from  $\frac{1}{2}$ " to 8" inclusive.

*Send for catalog and price list*

**American Pipe Bending Machine Company**

**Manufacturers and Patentees**

**33 Pearl St.,**

**Boston, Mass.**



### They Sent Us A Straight Order For 31 Hartford Taper Gauges

Yes sir, a leading New England firm (name on request) gave us a trial order for one HARTFORD TAPER GAUGE. They were so well satisfied with its exceptional efficiency that they sent us a *Straight Order for THIRTY-ONE MORE.*

For fast, rigidly accurate, economical taper gauging on end mills, profile cutters, twist drills, reamers, milling machine arbors, lathe centers, etc., it is absolutely unsurpassed. It's as good as an extra eye to the machinist because it instantly detects inaccuracies of less than 1-1000th of an inch. And it's yours at a surprisingly low price.

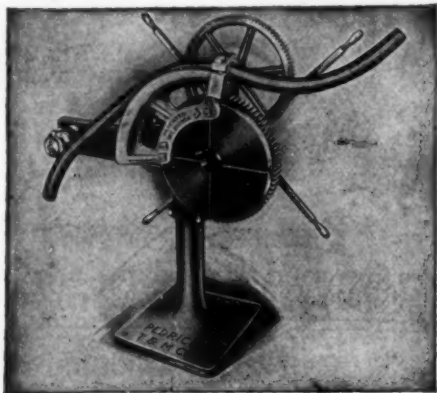
*Write us—you'll be pleased and so will we*

**Hartford Special Machinery Co.**

**285 Homestead Ave.,**

**Hartford, Conn.**

## Our Pipe Benders Meet The Demand



Ever since their invention our hand Pipe Benders have had a steady sale and have given universal satisfaction.

Recently, we have made some improved attachments that permit of a wider range of work and open up a new field in the kind of bending the machine will accomplish.

If you do pipe bending you will find our machine an economical, simple and very efficient appliance in reducing costs and doing better work. For 2" and under.

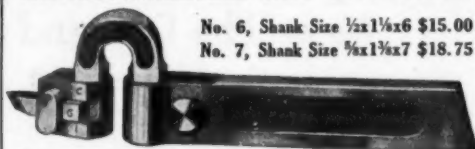
*We have a Bulletin waiting for you. Send for it now.*

**Pedrick Tool & Machine Co.**

**3644 N. Lawrence St., Philadelphia, Pa.**

Manufacturers of Cylinder Boring Bars, Portable Millers, Crank Pin Turning Machines, etc.

## Cleveland National Spring Head Tool Holder



No. 6, Shank Size  $\frac{1}{2} \times 1\frac{1}{2} \times 6$  \$15.00

No. 7, Shank Size  $\frac{3}{8} \times 1\frac{1}{2} \times 7$  \$18.75

For  
Broaching,  
Cut-off,  
Forms,  
Gauges,  
Keyways,  
Radius,  
Taps,  
Worm or  
Square  
Threading,  
Etc.



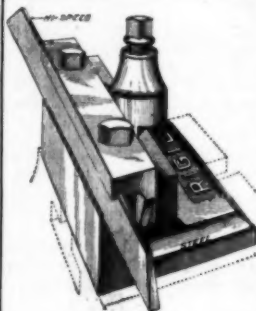
Write for  
30 days'  
trial offer

ALSO  
Circulars  
of other  
Modern  
Tool Room  
Specialties

**The Cleveland National Machine Co.**

Dept. T. L.,

Cleveland, Ohio



## "Unequaled"

writes H. M. Neal,  
406 10 St., S. E.,  
Washington, D. C.

"Your Back - Stroke  
Cutting-Off tool is un-  
equaled. I cut off 32  
 $5\frac{1}{2}$ " hard tool steel test  
pieces under automatic  
cross feed, throughout,  
with no trouble what-  
soever."

**RIGID**

**Tool Holder Co.**

Washington, D. C.



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## A New Cost-Cutting Tool



## McCROSKY STEADYREST

**frictionless self-centering**

Is fully described in the New No. 8 McCrosky Catalogue. You will value a copy of this catalogue. It is a practical hand book of machine-shop efficiency.

*We have a copy ready for you. Send for it today.*

**McCrosky Tool Corporation**  
**Meadville, Pa., U. S. A.**

Branches in Detroit, Chicago, Cleveland, San Francisco  
Agencies in all other principal cities

Export Agents: Benjamin Whittaker Inc., 21 State St., New York



Originators  
of the

Ground-Centredrill

**COGS DRILL**

Patented Dec. 2, 1919

**Just Think  
More Than A Thousand  
Satisfied Customers**



**Cogsdill Mfg. Co.**  
Detroit, Mich.  
Circular?

## Perfect Holes At Reduced Cost



### Madison Adjustable Boring Cutters and Bars

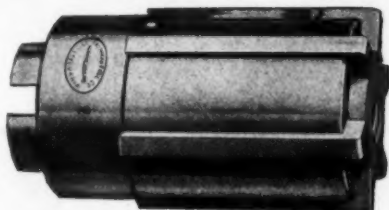
They replace reamers on automatic machines, turret lathes, boring mills, etc., because they insure accurate and uniform holes of any size at a great saving in time and cost.

Used in U. S. Ordnance and Navy Depts. on work requiring very close boring. Leading Automobile Corporations like the Continental, Cadillac and Lincoln Motor Companies are among the satisfied users of the MADISON.

*For efficiency and economy they have no equal*

**MADISON MANUFACTURING CO., - Muskegon, Mich.**

## Cashman Quality Reamers



### **This Cashman Adjustable Reamer Outlasts 15 or more Solid Reamers**

Unequalled for simplicity, durability and efficiency. **Only Three Parts:** Socket, Adjusting Screw and Lock Collar—all interchangeable. The H. S. steel blades are adjustable their whole length and easily renewed.



### **The Cashman Machine Reamer**

This is the latest development of the Cashman Quality Reamer Line. Adjustable from  $\frac{3}{4}$ " to  $3\frac{1}{2}$ "—straight or taper shank.

### **TWO UNRIVALLED COST REDUCERS**

*Sent on approval, at our risk and expense*

**Cashman Tool Company**  
Waynesboro, Pa.

---

# The Barker Wrenchless Chuck

**Permits Chucking the Piece  
While the Lathe is Running**

You don't have to stop the lathe and waste time fumbling about with wrenches to chuck your piece with the BARKER. Nor do you have to spend a lot of money installing and maintaining a costly Air Chuck System.

With the BARKER you simply give the lever one short pull and instantly the piece is chucked. *Easy, isn't it?*

Adapted for all kinds of lathe work. Can be used on any kind of lathe. The BARKER is the ideal chuck for fast, economical lathe production of duplicate work.

*Increases output up to 150%*

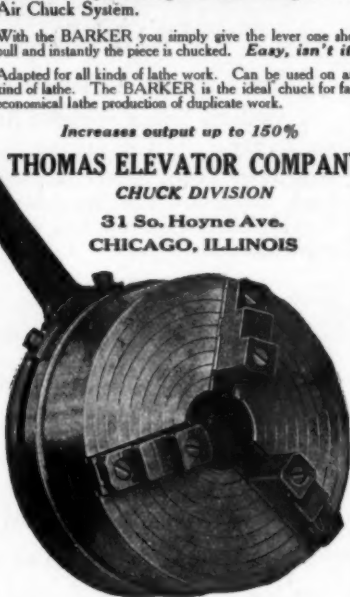
**THOMAS ELEVATOR COMPANY**

**CHUCK DIVISION**

**31 So. Hoyne Ave.  
CHICAGO, ILLINOIS**

**Sizes;  
6" to 16"  
Made with  
2 and 3 jaws**

**Centers  
Automatically**



*Complete Catalog on request*

---

# Jacobs Chucks

The use of a product in ever widening circles is incontrovertible evidence in favor of the quality of both product and service. The increasing demand for Jacobs Chucks is a case in point.



The Jacobs Mfg. Co.  
Hartford ~ Connecticut.

***Our Special Line:—***

**HOLLOW BORED FORGINGS  
OR STEEL SHAFTS**



If Lathe Spindles, Piston Rods, Hydraulic Cylinders, Rams, etc., are needed in your equipment it will pay you to submit your blue prints for quotations. We can offer you high grade service at lowest rates.

**A Trial Order Will Convince**

**American Hollow Boring Co.  
Erie, Penna.**

**Dies, Tools, Jigs, Gauges,  
Special Machinery, Ex-  
perimental Work and  
Manufacturing**

***Send us your Specifications***

**Screw Machine Products**

**GEO. H. AINGE TOOL, DIE  
AND MACHINE WORKS  
SPRINGFIELD, OHIO**

# Murchey Tools

**Shipped on Approval**



Send us blue prints of your work and we will ship you the tool or tools best suited to handle it, so you may try them out on your work at our risk.

Compared with solid tools, they save 50 to 75 per cent in time, give longer service, and do away with the risk of stripping threads. Made in two types for horizontal and vertical machines. They ream, face and thread without stopping to change tools. Their record for service and economy is unsurpassed.

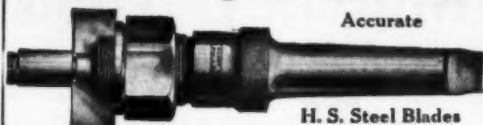
*We'll appreciate your trial order—you'll like our tools*

## Murchey Machine & Tool Co.

**850 Porter Street, Detroit, Mich.**

NEW YORK OFFICE	•	•	•	•	90 Warren Street
CLEVELAND OFFICE	•	•	•	•	1625 Williamson Bldg.
PITTSBURGH Representatives,	•	•	•	•	Laughlin & Burney, 819 Wabash Bldg.
CHICAGO Representatives,	•	•	•	•	R. E. Ellis Engineering Co., 621 Washington Blvd.
LOS ANGELES Representatives,	•	•	•	•	Harron, Rickard & McCone, 225 So. San Pedro St.
Costs Machine Tool Company,	•	•	•	•	14 Palmer St., Westminster, London, S.W., England
Fenwick Freres & Company,	•	•	•	•	8 Rue de Roeroy, Paris

## Better Boring At Less Cost



Accurate

H. S. Steel Blades

### Alert Boring and Facing Tool

It replaces H. S. Drills for facing, radiusing, counterboring, and boring large holes. Avoids the great expense of using high speed steel. Makes clean, straight holes 6" deep in *one* cut. Adapted for use on Turret Lathes, Automatic Screw Machines and Drill Presses. The three sizes are unsurpassed for fast and economical production.

Also Ratchet Tap Wrenches, Roller Grip Arbors and Roller Grip Mandrels—ALL PATENTED; High Speed Solid Tap Wrenches and Hand Knurling Tool Holders.

*Write for descriptive Circular "H"*

**Alert Tool Co., 237 N. 6th St., Philadelphia, Pa.**

## Can You Equal This Easy-Lock Holder and Counterbore Cutter



—for top-quality cutting service? To adjust it you don't have to waste time hunting round for wrenches, hammers or wedges. *One simple twist secures cutter in the holder.* Cutters can be used up to  $\frac{1}{2}$  of their length. Adapted also for screw machines and turret lathes. How's that for saving time, labor and good dollars?

*Send for our Illustrated Folder*

**Manufacturers Machine Products Co.**  
1320 Mt. Elliott Ave., Detroit, Mich.



# Moback Cutters

With Inserted and Adjustable Blades  
Multiply the Buying Power  
of Your Money



**Moback Face Mill**  
(Patent pending)

The MOBACK FACE MILL, shown in cut, has a high grade carbon steel holder, and with ordinary care stands up under the most rigorous milling service indefinitely. The cutting blades are made of the best modern high speed steel.

For maximum economy it has solid high speed steel cutters backed clean off the boards. The MOBACK also eliminates the frequent necessity of having to scrap costly solid cutters, and its price is lower.

The adjustability of blades insures 100 per cent increased milling service. One set of blades in the MOBACK FACE MILL outlasts two solid cutters. New blades can be inserted at small cost.

These exclusive improvements are also embodied in both the Moback End and Side Mills. Why indulge longer in the economic waste involved in using the expensive solid high speed steel cutters?

*Careful investigation of these superior cost-reducing tools will well repay you. Send postal today.*

**Moback Tool & Machine Mfg. Co.**  
330 Atlantic Ave., **Boston, Mass.**

Patented  
Jan. 30, 1917



**Type 6**

## Autex Extension Reel

Previous types have been eminently satisfactory to the user, but the present type possesses additional features that places the "Autex" clearly in a class absolutely exclusive. Our motto has been **GOOD, BETTER, BEST.**

*Write for particulars*

**The Cincinnati Specialty Mfg. Co., Inc.**  
1913-21 Powers St.,      Cincinnati, Ohio

## Weigel Double-Wheel "Trukaster"

Has heavy plates and axles. Easiest running, strongest and most durable double-wheel caster made. Lasts three times as long as others.

### "Kwality Kaster"

(See Illustration)

The strongest and most durable single caster. Won't crush or break. Swivels on steel machined rollers.

*Write for Price List*  
**THE HAMILTON  
CASTER & MFG. CO.**  
HAMILTON, OHIO



# Solid Tools Outclassed By Genesee Adjustable Hollow Mill

Adjustable to .001"  
Patented



**These are days** when conditions make it imperative that you make use of every economy available—and you have not done your utmost if your shop is still doing without Genesee Tools.

The 14 sizes of this adjustable. Hollow Mill cover the entire range from  $\frac{1}{4}$ " to 2", replacing hundreds of solid tools. One set of blades outlasts three to five solid tools, and are replaced at small cost.

Maximum efficiency is assured—cuts 12" to 15" in steel. They never clog up with chips and cannot change in size.

All wearing parts are case hardened. Holes drilled to allow stock to pass thru tool. Fits directly into turret.

**Put Your Jobs Up To Our  
Engineers For Rapid Production**

**Genesee Manufacturing Co., Inc.**  
**Rochester, N. Y.**

Manufacturers of Adjustable Hollow Mills, Facing Tools, and  
Inserted Tooth Face and Side Milling Cutters

## Heads One Rivet Per Second

—How's That For Efficiency?



Not only is that the unrivalled productive capacity of the GRANT ROTARY RIVET SPINNER, but to the great advantage of all within earshot it operates *noiselessly*. Nowadays when economy of production is increasingly imperative the GRANT will give you a clean-cut saving of 60% in riveting costs over hand riveting.

Send us a sample of your most difficult, particular riveting work and we'll give you a little evidence of the exceptionally fine work it turns out.

*Here's a good way to combine economy and efficiency. Write*

**The Grant Mfg. & Machine Co.**  
C. E. Station, Bridgeport, Conn.

## The "ETNA" Cuts Swaging Costs To Rock-Bottom



It beats swaging output by the power hammer and knuckle swager by 80 per cent. A power hammer delivers 400 blows per minute—the *Etna Rotary 3500 blows per minute*.

Swages round stock up to 20 feet per minute. Unrivalled for quickly and accurately tapering, pointing and graduating all kinds of round stock from  $\frac{1}{4}$ " to  $4\frac{1}{2}$ " diameter.

The "ETNA" makes metal tougher, more elastic and less liable to rust. Ruggedly designed. Eliminates waste of material.

*Let us fully explain its exclusive merits*

**The Etna Manufacturing Co., TOLEDO, OHIO**

# Riveting Revolutionized

"The Hammer with the human stroke"

**Heads Rivets Cold**



Heads 'em tight or loose, flush, countersunk, or finishes heads any shape desired at the rate of:—

A rivet a second, sizes up to 3-16 in.

A rivet in two seconds, sizes 1-4 to 3-8 in.

A rivet in three seconds, sizes 7-16 to 5-8 in.

## **Built in Eight Sizes**

To handle rivets from the smallest, up to 1½" in diameter. Send us sample assembly parts with rivets or sketch of your work, and let US shoulder your riveting problems.

*Send for the High Speed Hammer Book*

Department 13

**The High Speed Hammer Co., Inc.**  
Rochester, New York



Style "C"



The Hinge



Style "Y"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

### GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.

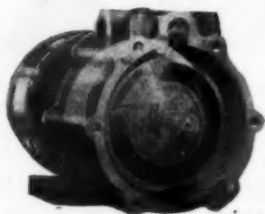
GITS BROS. MFG. CO  
1940 SO. KILBOURN AVE., CHICAGO



Style "H"

## This Tool Lubrication Pump

Stands Up To All Its Obligations



The **ROLLWAY** Pump does all that other types of lubrication pumps do—*only better.*

It is self-priming, won't clog, needs no relief or check valves and no overflow piping. Operates at low speeds. Compact, yet of large capacity.

It is *trouble-proof*, and its cost of maintenance is lower than that of any other rotary pump. Capacity, from 2 quarts to 150 gallons per minute.

Write for details of this *Trouble-Proof Pump*

**Michigan Machine Co.,** Detroit, Michigan

# TUCKER'S

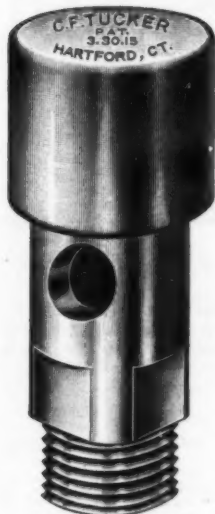
## Style G Dust Proof Oil Hole Covers

SELF CLOSING, WORKED  
WITH OIL CAN SPOUT



Genuine Tucker Cups  
Bear This Stamp

Beware of Imitations  
and Infringements



OPEN



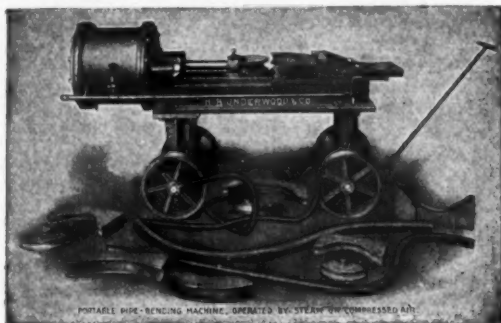
CLOSED

MANUFACTURED IN SEVEN SIZES

$\frac{1}{4}$ x32,  $\frac{5}{16}$ x32,  $\frac{3}{8}$ x24,  $\frac{1}{2}$ " pipe,  $\frac{7}{16}$ x24,  
 $\frac{1}{2}$ x24, and  $\frac{1}{4}$ " pipe threads.

**W. C. & F. C. TUCKER**  
HARTFORD, CONN.

# Railway and Repair Shops Use Underwood's Pipe Bender



## Bends a 2-inch Pipe in 2 Minutes—Cold

**H**ERE'S a handy and dependable portable pipe bender that bends any size of pipe up to 2-inch cold, without flattening or splitting. The piston is forced back by a spiral spring, so that front head and piston rod require no packing. Dies are easily changed and adjusted. Works on 80 lbs. steam or air pressure.

Our comprehensive line of time and money saving tools includes the following:—

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners; reflex water glass grinders; and special machines built to order.

*Your superintendent will find our Catalog interesting  
And you will find the use of our tools profitable*

## H. B. Underwood Corporation

1015-25 Hamilton St., Philadelphia, Pa.



## Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

**Write directly to those offering the machines for sale** for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

### FOR SALE BY

**Walther Machinery Co., 629 Main St., Cincinnati, Ohio**

Drill press, D-3 Colburn heavy duty, used.  
Drill presses, U. S. sensitive, motor driven, d. c., 220 v., (2) used.  
Drill, 8-spindle multiple, No. 4 Morse, used.  
Lathe, 13"x6" Willard d. b. g., s. q. c., c. d., used.  
Millers, Whitney hand type, (3); motor driven, d. c., 220 v., (2) used.

### FOR SALE BY

**The Wm. T. Johnston Co., Third & Vine Sts., Cincinnati, Ohio**

#### TURRET LATHES AND MILLING MACHINES.

Six 20x8 universal turret lathes, screw cutting, head has six holes, tool post four; all in fine condition, at very low prices.  
Also have several milling machines for sale.

### FOR SALE BY

**Reliance Machinery Sales Co.,  
Brighton Road At Pennsylvania Ave., Pittsburgh, Pa.**

Buffing stands, 14"x54" spindle, (4) each.....	\$ 30.
Crank planer, 16"x14"x14", fine shape.....	250.
Drill, 26" Pratt & Whitney, sliding head.....	100.
Drill, 26" New Haven, sliding head, b. g., p. f.....	150.
Hammers, 100 lb. Cady, belt lift.....	100.
Lathe, 15"x 6" Carroll-Jamieson, q. c. g.....	275.
Punch, single end, 1"x1", 18" throat.....	125.
Shaper, 20" shifting belt type, excellent shape.....	175.

### FOR SALE BY

**The Enterprise Machinery Co.,**

**28 S. Clinton St., Chicago**

Bolt cutter, 3 sp. Acme.....	\$2500.	Pipe machine, 2" Jarecki.....	\$ 250.
Boring mill, 36" Niles, 2 hds.....	1750.	Planer, 22"x5", 1 head.....	295.
Drill, heavy, Baker type.....	375.	Press, horn, bench, new, 150 lb.....	120.
Drill, hi-sp., 1" cap., s. h.....	175.	Press, punch, bench 130 lb., 11" wheel, cap. 1" in 1/16" new.....	90.
Gear cutter, B. & S. automatic spur, fine condition.....	350.	Punch pr., o. b., b. g., 4800 lb. 95¢	1150.
Grinder, Bath No. 2 cylindrical	700.	Punch, sh. & rod c. 1"x1", 250	350.
Grinder, univ., all angle, new, \$300 worth tools, 2 univ. mtrs.	500.	Punch, L. & A., 2" thru 2"	2300.
Lathe, 12x4 Monitor.....	175.	Riveter, 1" Schuster.....	175.
Lathe, 28x14 Rahn Carpenter heavy duty, fine condition.....	1100.	Roll, 11" for 1"	2500.
Miller, No. 2 Cin'ti pl. b. g.....	350.	Shaper, 16" Juengst.....	300.
Miller, 25 Becker, 95¢.....	450.	Shears, circle, power.....	75.
Miller, No. 2 Cincinnati, b. g.....	350.	Shear, 36" Peerless, 18" gap, 95¢	250.
		Thread miller to 12"	250.
		500 other tools. Write us.	

## SECOND-HAND MACHINERY

### FOR SALE BY

**Cyril J. Bath & Co.,**

**1603 St. Clair Ave., N. E., Cleveland, O.**

#### BAR STOCK MACHINES AND TURRET LATHES.

2" & 3" P. & W. turret lathes, power cross and long feed. No. 3 Foster screw mche. power fd. 21" & 24" Gisholts, taper attachment.

#### BOLT AND NUT MACHINERY.

3" Landis bolt cutter, late model. 4" Landis bolt cutter, extra long bed, motor drive.  
1" Acme bolt cutter, style B.

#### BORING MILLS.

No. 32 Giddings & Lewis horizontal.  
48" Gisholt double swivel head, single pulley drive.  
48" Niles, swivel and turret heads, gear drive.

#### DRILLING MACHINES.

28" Sibley. 4' Western radial, plain, motor dr.  
12" Rockford, bench. 4' Morris, plain, single pulley.  
26" Barnes, tapping attachment. 16" Cleveland wall radial, motor cr.  
5" Fosdick radial, plain, cone drive. 9" Cleveland wall radial.  
4" American radial, cone drive.

#### GRINDERS.

No. 3 Cincinnati 12x48 universal. 12" Bridgeport, a. c., motor driven.  
14x50 Norton plain cylindrical. New Yankee drill, motor driven.  
18" Bryant internal.

#### LATHES.

16"x 8' Bradford, quick change gear.  
19"x10' LeBlond, heavy duty, q. c. g., turret on shears, 4-way tool post.  
32"x20' New Haven, cone drive, b. g., solid spindle.  
34"x18' Putnam, cone drive, compound rest, solid spindle.  
14"x 8' Champion, q. c. g., d. b. g., taper attachment.  
18"x14' Champion, quick change gear, double back gear.  
24"x14' Boye & Emmes, double back gear.  
42"x28' Pittsburgh heavy duty, triple geared, motor drive.

#### MILLING MACHINES

No. 3 Brown & Sharpe plain. No. 12 Brown & Sharpe plain.  
No. 3-B heavy Brown & S. plain. No. 2 Cincinnati plain, cone drive, gear feed.  
No. 3 LeBlond univ., latest type. Type A Briggs, Lincoln type.  
No. 2-A Brown & Sharpe universal. No. 7-H Becker, Lincoln type.  
No. 2 Brown & Sharpe vertical.

#### MOTORS.

15 h. p. Westinghouse 230 volt d. c., 400-1200 r. p. m., 10 h. p. Card 220 v. d. c.

#### PLANERS

24"x24"x6' Liberty, new. 48"x48"x10' Cleveland openside.  
24"x24"x6' Gray. 48"x48"x20' Patch, 4 heads, reversing motor drive.  
24"x24"x8' Pease, single head. 60"x60"x20' Sellers, spiral dr., 4 hds.  
30"x30"x8' Niles-B.-P., box table.

#### PRESSES.

200-ton Southwark hydraulic flanging press, 5' gap, accumulator, Worthin<sup>g</sup> ton vert. triplex pump, 25 h. p. Westinghouse motor, for flanging boiler hds.  
D-301 Ferracute, 4" stroke, 32" between housings.

#### PUNCHES AND PLATE WORKING TOOLS.

Hilles & Jones 18' plate planer.  
Dunkirk 18' plate planer.  
16' Hilles & Jones bending rolls.  
42" single end plate shear.  
Henry Pels armor plate structural shear for 6x6x $\frac{1}{2}$  angles or 60 lb., 15" I beams.  
12" Southwark horizontal punch, 1 $\frac{1}{2}$ x1 $\frac{1}{2}$ .  
84" No. 2 Long & Allstatter single end shear,  $\frac{3}{4}$ " plate.  
No. 4-B Quickwork Rotary shear,  $\frac{3}{4}$ " capacity, 48" throat.  
Globe double end punch & shear, 30" gap, capacity 1x1.  
American Ship single end punch & shear, 38" gap, cap.  $\frac{1}{4}$  thru 1", belt drive.  
No. 5 Quickwork 48" gap, shear,  $\frac{3}{4}$ ", motor drive.

#### RIVETING MACHINES.

10' Morgan horizontal bull riveter, 14" plunger, 30-ton hydraulic crane, Dean triplex pump.

#### RIVET MAKING MACHINE.

Acme size A forging machine, standard dies.

## SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued.

### SLOTTERS.

16" Betts, cone drive.

18" Newton, cone drive.

### MISCELLANEOUS.

Crankshaft, 18", for 77½ Bliss press.  
Gear tooth rounder, 20" Rochester.  
Keyseater, No. 3 Mitts & Merrill.  
Keyseater, No. 4 Baker Bros.

Saw, 11½ Higley 14" blade.  
Shaper, 24" Gould & Eberhardt.  
Thread roller, No. 4 Manville.

## FOR SALE BY

A. M. Stoehr Machinery Co., 844-846 North Wells St., Chicago, Ill.

Only Used Machinery of the Better Class.

Arbor press, No. 3 Atlas compound.  
Compressors, steam & belt drive.  
Drill presses, 4, 5 and 6-spd. Allen.  
Drill press, 20" Champion, b. g., p. f.  
Drill press, 20" Barnes, 4-spindle,  
power feeds, back geared.  
Drill press, 36" Cin'ti, b. g., sl. hd.  
Gear hobber, No. 3 Barber-Colman.  
Grinder, No. 10 Besly, disc.  
Grinder, No. 70 Heald.  
Grinder, 48" Yates, knife.  
Lathes, 14" x 8" Sebastian.  
Lathe, 16" x 8" American, q. c. g.  
Lathe, 18" x 8" Advance, q. c. g.  
Lathes, 50 other sizes and makes.

Milling machines, Wisconsin hand.  
No. 3½ Fox, No. 25 Becker, No. 2  
American univ., No. 4 Cin'ti plain.  
Oil extractor, 26" Troy, bot. disc.  
Pipe mch., 6" Jarecki, motor drive.  
Planer, 24" x 24" x 6" New Haven.  
Presses: Nos. 2, 3, 4 and 4½ o. b. i.;  
No. 4 American Can straight side;  
No. 52 Toledo straight side; No.  
92½ Toledo straight side, b. g.  
Punch and shears: Cleveland, 24"  
thrt., 1½" cap.; also 4 others up to  
48" thrt., 1½" cap.  
Tapping mch., Tuttle, ½" cap.  
Other machinery; send in your list.

## FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

### LATHES.

18" x 8" Lodge & Shipley.  
20" x 8" Lodge & Shipley.  
19" x 10" Springfield.  
19" x 12" Springfield.  
24" x 12" Schumacher & Boye.  
24" x 14" Schumacher & Boye.

25" x 16" Niles.  
27" x 18" Springfield.  
33" x 20" Draper.  
42" x 16" Fitchburg.  
54" x 16" Putnam.  
72" x 30" Farrell triple geared.

### SHAPERS.

20" Smith & Mill's.  
20" Gould & Eberhardt.

24" Gould & Eberhardt.  
20" Wetherell, travelling head.

### PLANERS.

24" x 24" x 6" Liberty.

32" x 32" x 10" Sellers.

### MILLERS.

No. 22 Kemp Smith.  
No. 2 Rockford universal.  
No. 9 Kemp Smith plain.

No. 12 Kemp Smith plain.  
No. 3 Becker plain.  
Owen duplex.

### DRILLING MACHINES.

40" New Haven.  
24" Foote-Burt.  
16" Kern high speed.

6' arm Prentice.  
4' arm American.  
24" Aurora.

### MISCELLANEOUS.

Boring mill, 36" turret head.  
Boring and drilling machine, horiz.,  
No. 2 Pawling & H.  
Cold saw, 28" Q. & C.  
Gear shaper, 36" Fellows.  
Grinder, 8" x 30" Modern plain.  
Hammer, 1100 lb. Morgan, steam.

Marking machine, Mathews.  
Screw machine, ½" Garvin, hand.  
Screw machine, 1½" Foster, hand.  
Slotter, 6" Sellers.  
Turret, 16" Bardons & Oliver, univ.  
Wheel press, hydraulic, 84", 300-ton.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Federal Machinery Sales Company,**

**8 N. Jefferson St., Chicago, Ill. 218 Sycamore St., Milwaukee, Wis.**

**Used Tools—Excellent Bargains**

Boring and turning 100" Niles-Bement-Pond vertical mill, good as new.  
Cold saw, No. 11 Higley 3".  
Drills, new, No. 12 Natco multi. spindle, each having ten spindles, (2).  
Gear generator, 14" Lees-Bradner.  
Grinder, 12"x24" Modern plain.  
Grinder, 6"x32" Norton plain.  
Miller, No. 1 Rockford plain.  
Presses, No. 1 Rockford, o. b. l., 3" stroke, (2).  
Saw, No. 10 Racine.  
Tapper, No. 1 Garvin vertical automatic.

### FOR SALE BY

**A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago**

#### ENGINE LATHES.

11"x 5' South Bend.  
14"x 6' Smurr & Kamen.  
18"x 7' Chard, d. b. g., p. c.  
18"x 9' Bell, d. b. g., p. c.  
20"x 8' Hamilton, d. b. g., s. q. c.  
20"x 8' Lodge & Shipley, grd. hd.

#### MILLING MACHINES.

No. 6 Rockford, plain.  
No. 25 Becker, horizontal.  
No. 1 Newton slab.

#### DRILL PRESSES.

20" Mechanics, friction.  
26" Barnes, sliding head.  
28" Barnes, sliding head.  
36" Aurora, sliding head.

#### PUNCH PRESSES.

No. 1 Consolidated, grd., (2).  
No. 6 American Can.  
No. 8 & No. 11 Bliss auto. button presses.

#### TURRET LATHES AND SCREW MACHINES.

No. 3 Foster, plain head.  
20"x5' Bridgeport, (2).  
20"x8' Fay & Scott universal.  
22"x5' Reed.  
21" and 24" Gisholts.  
3x36" Jones & Lamson.  
16"x10" Milholland.  
16" Biggs (2).  
No. 1 Garvin, hand, (4).  
No. 1 B. & S. auto 1" (2).

#### BOLT CUTTERS AND PIPE MACHINES.

14" Acme, double head.  
24" Acme single head, (2).  
4" Acme single head.

#### MISCELLANEOUS.

Blower, No. 7 Sturtevant, high press.  
Boring mch., 24" bar, Binsse horiz.  
Gang splitter, takes 21" sheets.  
Gang splitter, takes 29" sheet.  
Gas engine, 35 h. p. Columbus.  
Gas engine, 55 h. p. Bruce-McBeth.  
Grinders, No. 2 Woods tool & cutter.  
Grinder, No. 2 Oesterlein tool & cut.  
Grinder, 10x30 Landis plain.

20"x 8' Reed, s. b. g., p. c.  
20"x 8' Reed, motor driven.  
22"x10' Davis, d. b. g., q. c.  
32"x10' Pond, s. b. g., p. c.  
34"x10' Putnam, s. p. g., p. c.  
38"x14' Fifield, s. b. g., p. c.  
Model AB Becker, vert., motor dr.  
Type "A" Briggs (2).  
No. 6 Brainard, Lincoln.  
2 spindle Guarantee, h. s., b. b.  
4 spindle Reed sensitive, 1" cap.  
24" No. 24 Foote-Burt heavy duty.  
2 spindle 24" Barnes, all grd. gang.  
No. 16 Bliss, horn.  
19" throat geared punch.  
New Swaine o. b. l. presses Nos. 27, 29, 31, 33, 35 and 37.  
No. 3 Stecher, hand, (4).  
16"x5' Dreses Fox.  
18"x6' American Fox.  
18"x6' Springfield Fox.  
7/16" Cleveland, ratchet feed.  
1" Cleveland, semi-auto.  
1" Cleveland, friction.  
1" Cleveland, jigger.  
1" Hartford, (2).  
1" Cleveland, jigger.  
4" Saunders (2).  
8" Eaton, Cole & Burnham.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Niles-Bement-Pond Company, 111 Broadway, New York**  
**Located at our various factories and stores.**

#### LATHES.

18"x 8' LeBlond, quick change.	32"x12' Pond, c. r.
22"x 8' Niles, c. r.	36"x20' Pond, 220 v., d. c. motor dr.
24"x10' Whitcomb, q. c.	42"x20' Niles, c. r.
26"x10' Pond, q. c., 220 v., d. c. motor.	48"x30' Niles, c. r.
26"x36' Niles, c. r.	50"x17' F. B. Miles.
28"x12' Pond, c. r.	54"x28' American, t. g., 220 v., d. c. mtr.
28"x18' Niles, c. r.	50" Niles pulley lathe.

#### TURRET LATHES.

No. 6 A P. & J. auto., 220 v., mtr. d. c.	28" size J. Gisholt, 31" spindle.
1"x10" P. & W., turret lathe.	24" size I Gisholt, 220 v., mo. dr., d. c.
2"x24" Jones & Lamson, cone head.	28" Milwaukee rigid, 41" spindle.
2"x36" Pratt & Whitney turret lathe.	32" Conradson turret.
24"x26" Pratt & Whitney, turn table.	34" size K Gisholt.

#### PLANERS.

30"x30"x 6' Pond, 2 heads.	38"x38"x16' Niles, 3 heads.
30"x30"x12' Pond, 3 heads, 220 v., d. c., reversing motor drive.	42"x42"x14' Pond, 3 heads.
30"x30"x10' Pond, 2 heads.	60"x60"x14' Niles, 4 heads.
36"x36"x12' Gray, 2 heads.	60"x60"x20' Niles, 3 heads.
38"x38"x10' Niles, 2 heads.	60"x60"x24' Niles, 4 heads.
38"x38"x12' Niles, 4 heads.	72"x72"x12' Bement, 4 heads.
36"x36"x16' Pond heavy, 2 heads, 220 v., d. c., reversing motor drive.	72"x72"x20' Ridgway, 4 heads, 220 v., reversing, motor d. c.
	10"x10"x36' Betts, 4 hds., 220 v., d. c. mtr.

#### MILLERS AND GEAR CUTTERS.

No. 5 B. & S. plain cone type.	No. 6 60"x12" B. & S. gear cutter.
No. 5 B. & S. vertical, cone type.	15" Gleason bevel gear generator.
No. 3 36"x8" B. & S. gear cutter.	6"x48" P. & W. thread miller o. s.
No. 4 36"x8" B. & S. gear cutter.	6"x80" P. & W. thread miller o. s.

#### DRILLING MACHINES.

40" Aurora, tap, attach.	5' Ridgway, 220 v., d. c. motor.
3' Grant radial drill and boring mch.	6' Niles full univ., 220 v., d. c., m. d.
3' Dreses plain radial.	6' Niles semi-universal, old style.
4' Bickford plain radial.	6' Pond radial, 220 v., d. c. motor.
4' Niles full universal, old style, 220 v., motor d. c.	No. 13 P. & W. multiple 12 spindles.

#### GRINDERS.

24" Drill grinder.	8"x30" Fraser universal.
No. 8 Higley saw grinder.	10"x72" Norton plain.

#### BORING MACHINES.

No. 1 Bement horiz., 21" spd., 8' tbl.	No. 4 Bement horiz., 41" spd., 10' tbl.
No. 2 Bement horiz., 31" spd., 6' tbl.	60" Bement bor. & t. mill.
No. 24 Niles horiz., 4" spd., 6' tbl.	10' Niles b. & t. mill, 220 v., d. c. mtr.
No. 3 Bement horiz., 4" spd., 9' tbl.	5" spindle Niles floor borer.
No. 3 Bement horiz., 41" spd., 9' tbl.	6" spd. Bement floor boring & drill.

#### MISCELLANEOUS.

Air compressor, type 10, Ingersoll-Rand, steam driven, capacity 535'.	Engine, gen. set, d. c., 220 v., 100 k. w.
Air compressor, Ingersoll-R. duplex, mtr. dr. 35 h. p. d. c. mtr., cap. 215'.	Graduating machine, LeBlond.
Air compressor, Gardner class D, duplex, steam, capacity 837'.	Hammer, 750 lbs., agl. frame, Sellers.
Blower, No. 10 Sturtevant.	Hot blast apparatus, Sturtevant, 120" housed steam fan engine dr., 10 section corrugated base heater 8' 6"x5' 6"x6" high, 440' per section.
Blower, No. 70 Buffalo.	Keyseater, No. 1 Baker.
Crane, 3 ton, Niles, 14' 3" span.	Motor, 100 h. p. West, mill type, 220 v., 2 p., 60 c., a. c.
Crane, 20 ton, 45' span Sellers, 220 volt, motor direct current.	Profiler, No. 3 Keller, automatic.
Engine, 135 h. p., Phila. cross comp. Corliss air compressor.	Saw, 8" rounds, Higley.
Engine, 150 h. p. Phila. Corliss.	Screw shaver, No. 2 P. & W.
Engine, 200 h. p. Corliss, twin.	Separator, American No. 1, oil.
	Slotter, 6" Bement.

## SECOND-HAND MACHINERY

### FOR SALE BY

#### **Brownell Machinery Co.,**

#### **11-13 Eddy St., Providence, R. I.**

Boring mill, No. 1 Lucas horiz.  
Boring mill, No. 32 Lucas horizontal,  
direct motor drive.  
Boring mill, No. 1 Cleveland hor.  
Drill, 26" H. & W. sens. radial.  
Drill, 3" American Tool Wks. radial.  
Drills, 25" Cincinnati upright.  
Drills, 25" Hoefler, sliding head.  
Gear cutter, No. 24 Whiton auto.  
Gear cutter, Whiton, hand feed.  
Gear generator, 11" Gleason, bevel.  
Gear shaper, No. 612 Fellows.  
Grinder, 6x30 Morse plain.  
Grinder, 10x50 Norton plain.  
Grinder, No. 1 Bryant chucking.  
Lathes, 14"x 6 Flather, q. c. g.  
Lathes, 16"x 8" Flather, q. c. g.

Lathes, 20"x 8" Whitcomb-Blaisdell.  
Lathes, 20"x 10" Roulsted.  
Miller, No. 1 Garvin universal.  
Miller, No. 1-B Kearney & Trecker.  
Miller, No. 24 Brown & Sharpe pl.  
Miller, No. 2 Van Norman duplex.  
Planer, 17"x 20"x 5" Whitcomb-B.  
Planer, 22"x 22"x 5" Whitcomb-B.  
Planer, 24"x 24"x 6" Whitcomb-B.  
Planer, 30"x 30"x 8" Whitcomb-B.  
Rack cutter, Gould & E. automatic.  
Shaper, 14" Flather plain.  
Shaper, 15" Kelly plain.  
Shaper, 18" Flather plain.  
Swaging machines, No. 2 Standard  
Machinery.  
Swaging machines, No. 4 B.

### FOR SALE BY

#### **H. D. Warner,**

#### **57 May St., Hartford, Conn.**

Air compressor, Sullivan, cap.  
3150 cu. ft., nearly new.  
Annealing furnace, large, for  
stampings in large lots, \$1200.  
Automatics, 8" model B Cleve-  
land, (4) each..... 250.  
Automatic, 11" Cleveland..... 350.  
Automatics, 34" Cleveland, (2)  
each..... 1200.  
Automatic, 6" Cleveland.  
Automatics, 9/16" Acme mul-  
tiple-spindle, (4) each..... 200.  
Automatic, No. 55 1 1/2" Acme  
multiple spindle..... 800.  
Automatic, 1 1/2" Gridley mul-  
tiple-spindle.  
Automatics, 3 1/2" Gridley, (10)  
each..... 750.  
Boring machine, Betts hor..... 850.  
Boring & turning mchs., 42"  
Putnam vertical car wheel.  
Boring & turning mchs., 54"  
Sellers vert. car wheel, (2).  
Boring mill, 84" Sellers vert..... 8000.  
Backing-off mch., Cleveland.  
Buffing machines, automatic,  
(12) each..... 150.  
Chucking machines, No. 24  
4-spd. New Britain, (6) each 2600.  
Chucking machine, No. 33  
New Britain.  
Crane, 10-ton electric traveling.  
Die sinker, Pratt & Whitney  
old type No. 2..... 350.  
Drill press, 3-spd. Taylor & F.  
Drills, single-spindle sensitive,  
new, (2) each..... 80.  
Fire extinguishers, 2 1/2-gallon,  
(25) each.

Gear cutters, 36" G. & E.  
Gear cutter, Flather.  
Grinder, Gardner disc.  
Grinders, Bryant chucking, (4)  
each..... \$500.  
Grinder, Blanchard vertical.  
Millers, Becker large hand, (5)  
each..... 150.  
Millers, 12" Pratt & Whitney  
light auto., receding & quick  
return table, (12) each..... 350.  
Millers, 12" heavy type Pratt &  
Whitney automatic..... 500.  
Millers, No. 2 Pratt & Whitney  
Lincoln type, (5) each..... 100.  
Millers, No. 12 Pratt & Whitney  
Lincoln type, (6) each..... 200.  
Molding machines, Tabor, (4).  
Planer, 30"x 30"x 8" Pond.  
Planer, 30"x 30"x 10" Putnam.  
Press, No. 16 Bliss horning.  
Press, No. 73 1/2 Bliss back grd.,  
nearly new..... 1750.  
Press, No. 85 Bliss straight-side.  
Press, Perkins back geared,  
double action cam, weight  
about 22,000 lbs., comparative  
to Bliss No. 6 cam dbl. action. 3500.  
Press, No. 2 Stiles.  
Punch & shear, Lambertville..... 750.  
Separator, Dings magnetic.  
Shaper, Fitchburg 20" trav. hd. 500.  
Shear, alligator, 24" sq. cold.  
Shear, squaring, 10" Ohl, pwr. 850.  
Shear, plate, Ryerson bevel, new 1050.  
Slitting mch., 16" Torrington.  
Time clocks, International, (6)  
each..... 125.  
Winch, new..... 100.

## SECOND-HAND MACHINERY

### FOR SALE BY

**Brown-McDonald Machinery Co., 2323 N. 9th St., St. Louis, Mo.**

#### LATHES.

12"x 6' Lancaster, c. r., h. s., new.	20"x10' Walcott, q. c. g.; d. b. g.; new.
14"x 6' Monarch, d. b. g., q. c. g.; used.	20"x12' LeBlond; used.
14"x 6' Rockford, d. b. g.; used.	24"x10' Fay & Scott, h. s., used.
14"x 6' Fay & Scott, chuck; used.	26"x 8' Walcott plain turning.
14"x 8' Monarch; rebuilt.	26"x12' Walcott, q. c. g., d. b. g., new.
14"x 8' Sidney, 1st class condition.	26"x12' Wickes, heavy duty, quick change gear, double bk. gear, with taper attachment, new.
16"x 8' Walcott, q. c. g., d. b. g., new.	28"x12' Draper, triple geared.
18"x 8' Monarch, d. b. g., q. c. g.	
20"x 8' Lodge & Shipley; used.	
20"x 9' Williams turning lathes.	

#### TURRET LATHES.

Foster No. 3, plain head, (7).	Wysong & Miles, 24" b. g., p. f., air chuck, (2).
Wood Tilted Turret, 1 1/2" cap., (2).	16"x 7' Fulton, b. g., p. f., (4).
Omar, 16x6, b. g., p. f. with equip.	14"x4' 6" S. & K. plain head.
Gisholt, 16" Type A., b. g., (2).	

#### DRILLING MACHINES.

No. 1 Burke, bench, chucks, new.	6 spindle Allen, high speed cap. 29/32.
3" Leland Gifford, high speed.	13" Prentice, p. f., stat. table, used.
3 spindle Fox style A, 1/2" cap.	20" Champion, s. b., b. g. & p. f., new.
4 spindle Garvin; used.	20" Champion, s. b., w. & l., new.
4 spindle Allen, high speed cap. 29/32.	Prentice suspension drill; used.
4 spindle Avey, high spd.; used.	26" Barnes, sl. hd., b. g., p. f.; used.
5 spindle Allen, high speed cap. 29/32.	30" Gould & E., sl. hd., b. g., p. f.

#### MILLING MACHINES.

No. 2 American Lincoln, b. g., new.	No. 3 Garvin, hand, used.
No. 1 U. S. hand, vise and arbor.	No. 3 B Owen pl. hor., with vertical attachment & dividing head, used.
No. 2 P. & W., Lincoln type, used.	Hendey, Lincoln type, b. g. with q. c. g. to feed, tables 11x30, (6).
No. 1 B Fox hor., h. & p. f., new.	No. 6 Whitney, hand; used.
24" Osterlein, universal.	No. 3 1/2 Fox, hand & power fd., used.
Becker No. 7H Lincoln; used.	
Hendey No. 4 Lincoln type, q. c. g.	
Foster thread miller.	

#### PRESSES.

Nos. 1, 2, 3, 4 Loshbough-Jordan, o. b. l., new.	No. 2 Greenerd, arbor, used, (6).
No. 1 Greenerd, arbor, used, (9).	Nos. 2 & 3 Geter, arbor; new.
	Perfection, 30 ton, arbor; new.

#### SAWS.

Nos. 1 & 2 Marvel, draw cut, new.	Racine hi-speed, 3 sp., 8x8" used.
No. 1 Racine, 6x8 high speed, new.	Williamson, metal, used.

#### GRINDERS.

Nos. 1, 2 & 3 Western, d. e., new.	G. R. B-2-T drill grinder.
Nos. 1, 2 & 3 St. Louis, d. e., new.	U. S., electric, 110 v., d. c., bench.
No. 20 Safety E. W. Co., elec. (4).	Essley, cylindrical.
No. 1 Grand Rapids universal cutter and tool; new.	No. 1 American, surface; new.
Wood No. 2 univ. cutter & tool; used.	No. 2 American, surface, new.
	14" Besly wet ring grinder.

#### HAMMERS.

30 lb. Rochester helve, used.	No. 50 Star trip hammer, new.
Foot hammer, Standish.	1200 lb. Chambersburg double frame, steam forging, used.
800 lb. Lane, dbl. fr., st. forging, used.	

#### MISCELLANEOUS.

Bolt threader, Greenfield 1 1/2" to 1 3/4".	Pipe machine, 3" Borden, hand.
Bolt threader, Greenfield 1 3/4" to 2".	Riveters, Grant and Shuster; used.
Keyseater, No. 2 Davis.	Shaper, 16" Whipp, sgl. gr.; new.
Lathe chucks, all sizes to 16" diam.	Shaper, 16" Gould & Eberhardt; used.
Motors, 5, 10 & 50 h. p. G. E., 220 v., 3 ph., 60 cy.	Spot-welder, Federal electric, capacity 1/2"; used.
Pipe cutter, B. & K., 4" cap.	Stake punch & riveter, No. 3 Hilles
Pipe mch., No. 76 Forbes, 3", used.	& Jones, 8" thr., wt. 16000 lbs., used.

## SECOND-HAND MACHINERY

### FOR SALE BY

**The Shelton Tack Co.,**

**Shelton, Conn.**

Lathe, 16"x16" Putnam.....	\$150.
Lathe, 18"x8" Putnam.....	185.
Pump, Gould's centr. belt power, size 3, cap. 270 gallons per minute.....	45.
Slitting shear, Janesville belt power, 7" blades, 3/16" capacity.....	125.

Photos and description on request.

100 Split pulleys, steel and wood, all sizes 6" to 40".  
2,000 Re-made leather belting, like, new, 1/2", 3/4", 1" and 1 1/2".

Send for list.

### FOR SALE BY

**Tubor, Velick & Co.,**

**629-631 W. Lake St., Chicago, Ill.**

#### LATHES.

Cisco 22"x10', q. c.	Wickes 20"x18'.
Fay & Scott 14"x 6', comp. rest.	Fitchburg, (3).
Chard 18"x 7', (3).	

#### PUNCH PRESSES.

No. 2 Michigan, o. b. l., (3).	No. 16 1/2 Bliss, rack & pinion, (4).
No. 18 Bliss, o. b. l.	

#### SCREW MACHINES.

No. 4 Warner & Swasey.	No. 3 Smurr & Kamen, (2).
No. 4 Smurr & Kamen, (10).	No. 1 Garvin.

#### MILLING MACHINES.

No. 25 Recker, b. g., p. f.	No. 0 Van Norman, hand, (2).
No. 3 1/2 Fox, p. f., (25).	No. 4 Hendey, Lincoln type, (10).
No. 1 Kempsmith, b. g., p. f.	Hand millers, different makes, (25).
No. 2 American universal.	

#### DRILL PRESSES.

2, 3, 4, 5 & 6 spindle Allen, h. s., b. b.	20" Barnes, plain.
24" Ryerson, b. g., p. f.	

We also have paper balers, foundry trucks, pulleys, belting, hangers, shafting, motors, tinnerns' tools, tanks up to 500 gal. capacity, kick presses and many other articles. Write us about your needs.

### FOR SALE BY

**E. L. Esley Machinery Co., 551-557 Washington Blvd., Chicago, Ill.**

#### DRILL PRESSES.

24" No. 25 Foote-Burt hvy. duty.	4 sp. Allen high speed b. b. drill.
22" G. & E. sliding head, (2).	32" W. F. & John Barnes, sl. head.

#### LATHES.

10"x4' Reed.	18"x10' Prentice, q. c. g.
14"x6' Sebastian.	20"x14' Putnam.
18"x8' Whitcomb Blaisdell, q. c. g.	30"x14' Niles.

#### MISCELLANEOUS.

Bolt cutter, 3" Acme, single head.	Planer, 36"x36"x12' Rockford, new.
Boring mill, 34" Colburn vertical.	Planer, 36"x36"x12' Woodward
Broaching machine, No. 2 Lapointe.	Powell.
Gear cutter, No. 3 B. & S. auto.	Planer, 36"x36"x8' Niles.
Grinder, No. 3 B. & S. plain.	Punch pr., No. 4 & 4 1/2 Niagara, o. b. i.
Grinder, 12x48" Cincinnati, cyl.	Saw, Smith & Post cold saw.
Grinder, 8 x32" Landis plain.	Screw machine, No. 0 B. & S. semi-
Grinder, P. & W. vertical surface.	auto, hand.
Grinder, 10"x26" Ott universal.	Screw mach., No. 2 1/2 Garvin, hd. mach.
Grinders, No. 10 Besly 18" dbl. disc, (4).	Screw mach., No. 3 Foster, pl. hd.
Hammer, 600 lb. W. W., board drop.	Screw mach., No. 4 Foster, pl. hd..
Hammer, steam, 800 lb. Massillon.	Screw mch., 2"x24" Cleveland auto.
Miller, No. 33 Kempsmith prod. type	Shaper, 18" Niles, traveling head.
Miller, No. 2 Milwaukee universal.	Turret lathe, 2"x24" J. & L.
Planer, 32"x32"x8' New Haven.	Turret lathe, No. 2 Pratt & W.
Planer, 36"x36"x8' Betts.	Turret lathe, 24" Conradson.



## SECOND-HAND MACHINERY

### FOR SALE BY

**Russell Machine Co., Inc., 28th St. & A. V. R. R., Pittsburgh, Pa.**

#### LATHES.

- |  |  |
|--|--|
| 48"x32" N. B. P., triple geared.         | 18"x 8' Sidney, q. c. g., d. b. g.     |
| 48"x28" Niles, c. r.                     | 18"x 8' Rahn-Mayer-Carpenter.          |
| 48"x26" Pond, triple geared.             | 16"x 6' Columbus, q. c. g., new.       |
| 36"x18'8" Niles, c. r.                   | 15"x 8' Schellenbach, d. b. g., h. a.  |
| 28"x12' Boye & Emmes, q. c. g., d. b. g. | 14"x 6' Hendey, q. c. g.               |
| 26"x12' Pittsburgh, dbl. b. g.           | 11"x5' South Bend, b. g.               |
| 26"x20' 6" Putnam, b. g., c. r.          | 9"x42" South Bend.                     |
| 26"x10'6" Walcott, q. c. g.              | 24"x 6' Gisholt turret, 64" h. s.      |
| 24"x16' 6" Johnson lathe.                | 24"x 6' Gisholt tur., 64" h. s., m. d. |
| 24"x12' Ames, b. g., c. r.               | 15"x 5' American brass finishers'.     |
| 18"x 8' Mueller, q. c. g., new.          | 14"x 5' American speed lathe.          |
| 18"x10' LeBlond, motor drive.            | 13"x 5' Blount speed lathe.            |

#### PLANERS AND SHAPERS.

- |                                    |                                    |
|------------------------------------|------------------------------------|
| 20"x20"x51" planer, 1 hd.          | 16" American shaper, b. g., m. d.  |
| 24"x24"x8 Chandler planer, 1 head. | 16" & 20" Gould & Eberhardt, b. g. |
| 48"x48"x22" Pond planer, 4 heads.  | 21" Smith & Mills, b. g. crank.    |
| 72"x56"x12" Betts planer, 2 heads. | 24" Cincinnati b. g. shaper, m. d. |

#### DRILLS AND BORING MILLS.

- |                                     |                                   |
|-------------------------------------|-----------------------------------|
| 20" Champion, new, pl. w. & l.      | No. 90 Champion post drill.       |
| 30" Silver, new, plain w. & l.      | Garvin 4 spindle drill press.     |
| 36" Snyder b. g. drill.             | 30" Warner-Swasey boring mill.    |
| 40" New Haven, b. g. drill.         | 36" Bridgeport boring mill.       |
| 3', 4' & 6' Prentice radial drills. | 42" Bullard boring mill, 2 heads. |
| No. 3 Phoenix air drill.            | 50" Bullard boring mill, 2 heads. |
| 10" Dwight-Slate sensitive, floor.  | 60" Niles boring mill, 2 heads.   |

#### PUNCHES, SHEARS, PRESSES AND ROLLS.

- |  |   |
|--|---|
| 50" throat Reade sgl. end punch and shear; massive construction.       | Long-Allstatter type A punch, 2x1".           |
| No. 45 Buffalo punch, 2x1".  | No. 86 dbl. housing knuckle press.            |
| No. 4 Doelger & Kirsten alligator shear, cap. 4 1/2" round soft steel. | Stiles Nos. 3 & 23 inc. presses.              |
| Morgan plate shear, 96"x1" thick.                                      | Bliss No. 18 & 21 o. b. i. power press.       |
| Garrison plate shear, cap. 3"x81", m. d.                               | Straight-side trimming press, 6" str.         |
| Mesta plate shear, cap. 3"x156".                                       | Straight-side punch press, 4" str.            |
| Knight s. e. punch, 8" thr., 1/2"x3 1/2".                              | Bliss No. 76 1/2 s. s., d. g. press, 11" str. |
| 18" throat Rees s. e. punch.   | No. 97-A Toledo dbl. crank press.             |
|  | Corry Mch. Co. press, 12" stroke.             |
|  | No. 116-A Niagara press, m. d.                |

#### MILLING MACHINES.

- |                                 |                                |
|---------------------------------|--------------------------------|
| No. 2 Brown & Sharpe universal. | No. 3 LeBlond plain.           |
| No. 2 LeBlond universal.        | No. 12 Garvin plain, 18x6x15". |

#### MISCELLANEOUS.

- |   |  |
|---|--|
| Air compressor, No. 0 Au-To 3"x4".        | Grinders, Plymouth Nos. 12, 14, 17.    |
| Air compressor, 8"x8" hor. b. d.          | Grinder, Barnes 20" wet tool.          |
| Band saw, Graves-Klusman 36".             | Hammers, 100 & 200 lb. belt power.     |
| Bender, Wallace No. 11 angle, hd. pr.     | Hammers, 2500 lb. Chambersburg,        |
| Blower, Root No. 3 Acme, hand.            | double leg steam forging.              |
| Blower, Sturtevant, No. 4, volume.        | Heading, upsetting and forging         |
| Blower, Buffalo No. 8 volume              | machine, 3" National.                  |
| Blowers, Buffalo Nos. 5 and 8.            | Hoist, contractor's steam, with 8 h.   |
| Boiler, 24"x5' vertical.                  | p. boiler & 5 h. p. engine.            |
| Bolt cutter, Landis 1 1/2".               | Index centers, 12" B. & S. univ.       |
| Brazing table, all iron, 17"x29 1/2"x31". | Metal lockers, 10 sections.            |
| Chain belt, 16"x8"x1 1/2" p. and gear.    | Polishing stand, Diamond No. 2.        |
| Cold saw, No. 17 Higley, 20" saw.         | Polishing stand, d. end, 42"x3" arbor. |
| Cold saw, Wagner, size 18 type 3.         | Polishing stand, Cuyahoga dbl. end.    |
| Cold saw, Gliem, 22" diam. 6" cap.        | Slotter, Niles 15".                    |
| Crane, 10" I-beam, 12'3" span.            | Straightening rolls, Cleveland,        |
| Crimping machine for short work.          | 84"x10" dia.                           |
| Forges, Nos. 41-43 Champion new.          | Trimmer, American No. 2, univ. wood.   |
| Grinder, Greenfield cutter & tool.        | Wiring machines, Pexto, bench.         |
| Grinder, Diamond No. 3 wet tool.          |  |

## SECOND-HAND MACHINERY

### FOR SALE BY

**Frank H. Parker Company, First Nat'l Bank Bldg., Chicago, Ill.**

Air compressor, 13x8x12.....	\$ 800.	Punch, 1½ in 1½", 36" throat...	\$2200.
Bending roll, 8".....	500.	Radial drill, 3".....	1000.
Boring mill, 8".....	1800.	Shaper, 16" American.....	400.
Lathe, 22"x13" Pond.....	200.	Shaper, 21" American.....	650.
Lathe, 28"x16".....	350.	Shear, 4', 15" gap, 11 gauge...	700.
Lathe, 36"x12".....	700.	Slotter, 24".....	1000.
Planer, 36"x36"x10'.....	800.	Triple tackle, 5 ton Y. & T. ....	150.

### FOR SALE BY

**E. B. Stickley Mchy. Co. 693-701 E. Congress St., Detroit, Mich.**

Gear generator, Bilgram, 16".	Miller, No. 3 Cincinnati vertical.
Gear generator, Gleason, 18".	Miller, Ingersoll, slab type, 42x12x12', motor drive.
Gear hobbers, No. 2 Schuchardt & Schutte, cap. 36" dia. (3).	Squaring sh., No. 500 3/16-E Toledo, blades 97" long, 3/16" cap., 15" gap.
Gear machines, Fellows, 36", for spurs, (3).	Turret lathe, Steidle 24" single pulley drive.
Gear machine, No. 2-B Newark, 24", for spurs and bevels.	Turret lathes, No. 24 G. G. Prentice, 4-spindle semi-automatics (2).
Miller, No. 2 Cincinnati univ., geared type.	Turret lathes, single and double spindle, Jones & Lamson, (4).
Miller, No. 3 Cincinnati plain, geared type.	

### FOR SALE BY

**The O'Brien Machinery Co.,**

**119 N. Third St., Philadelphia, Pa.**

Bending rolls, 8", 8" and 6" diam.	Miller, No. 3½ Fox.
Bolt cutter, 2" Acme, single head.	Miller, No. 3 Becker vertical.
Bolt cutter, 1" Acme.	Pipe machine, 4" Oster.
Bolt cutter, 3" Acme, single head.	Pipe machine, 2" Cox, heavy duty.
Boring mill, 32" Rogers, turret hd.	Pipe machine, 2" Oster.
Boring mill, 52" Bement vertical, with 2 heads, motor driven.	Pipe machine, 6" Oster.
Drill, 3½ spindle Baker Bros, heavy duty upright.	Pipe machine, 8" Curtis & Curtis.
Drill, Allen 5-spindle, high speed.	Planer, 42"x46"x9" Pond.
Drill, Allen 6-spindle, high speed.	Planer, 50"x50"x18" Betts.
Drills, Moline heavy duty hog drills (2).	Press, No. 18 Bliss inclinable.
Drill, radial, 3' Gang.	Press, No. 14-A Stoll inclinable.
Drill, radial, 4' Niles.	Presses, No. 37½ Bliss straight side, 6" stroke; several.
Hammer, 800 lbs. Bement-Miles, double frame steam.	Presses, No. 52 Bliss straight side, 2" stroke; several.
Hammer, 1200 lbs. Bement-Miles, double frame steam.	Press, No. 7½ Bliss straight side, 2½" stroke, weight 13500 lbs.
Hammer, 2,000 lb. United Engine Co. board drop.	Presses, several Waterbury Farrell double acting, weight 2,000 lbs.
Lathe, 8"x106" Fitchburg Lo-Swing.	Presses, Toledo No. 53 straight sided power, 3½" stroke, (7).
Lathe, 16"x7" Pratt & Whitney.	Press, No. 3½ Toledo.
Lathe, 18"x9" Lehman.	Shaper, 16" Hollingworth, back grd.
Lathe, 20"x9" Lehman.	Shaper, 18" Hollingworth.
Lathe, 20"x10" Boye & Emmes.	Shapers, 2-12" & 2-15" Springf'd.
Lathe, 20"x14" Powell.	Shapers, 12", 20" and 24" Juengst.
Lathe, 23"x12" Blaisdell.	Slotter, 12" stroke Bement.
Lathe, 24"x10" Gang.	Turret lathe, No. 2 Garvin, wire feeds, 20 collets.
Lathe, 24"x14" Niles.	Turret lathes, No. 3 Warner & Swasey, geared friction head, (4).
Lathe, 48"x16" Sellers.	Turret lathe, No. 6½ Bardon & Oliver, wire feed, cabinet base.
Lathe, 65"x18" Bement.	
Miller, No. 3 Hendey plain.	

## SECOND-HAND MACHINERY

### FOR SALE BY

**J. Bleser Manufacturing Co.,**

**Springfield, Ill.**

Adding mche., 9-column Burroughs.  
Air compressors, 10x10 Sullivan.  
Chain hoists, Wright 2-ton h. s., new.  
Cranes, Whiting overhead, hand pwr.  
Crucibles, Nos. 60 and 70, new.  
Crucible furnaces, Fisher, fuel oil.

Lathe, 17" LeBlond, rapid pwr., q. c.  
Lathe, 20"x8" Monarch, q. c.  
Millers, hand, No. 3 Burke.  
Snap flasks, Arcade 10x16x4Cx3D.  
Sprue cutters, Champion and Riddle.  
Time clock, Cincinnati, new.

### FOR SALE BY

**Herman L. Winterer,**

**943-53 N. Front St., Philadelphia, Pa.**

#### LATHES.

43"x17 $\frac{1}{2}$ " Bement-Miles.  
42"x25" 6" Putnam.  
42"x16" Niles.  
37 $\frac{1}{2}$ "x14" Johnson d. b. g., q. c. f.  
32"x12" Pittsburgh, heavy duty, q. c. g.  
26"x16" 6" American, q. c. g.  
27"x12" Bullard.  
26"x11" Wickes, q. c. g.  
25"x10" Niles, q. c. g.  
25"x14" Hendey, q. c. g., taper attachment, oil pan, (2).

21 $\frac{1}{2}$ "x5" LeBlond.  
20"x8" 6" Walcott, d. b. g., q. c. g., (2).  
20"x8" Whitcomb Blaisdell, q. c. g.  
19"x12" Flather.  
19"x10" Draper, patent head.  
18"x7" Chard, d. b. g., semi q. c. g.  
18"x6" to 8" lathes, (6).  
17"x10" Lodge & Shipley, q. c. g.  
16" Lathes, (10).  
14" Lathes, (19).  
And many others.

#### TURRET LATHES.

43"x6" Lodge & Shipley chucking.  
28" Pond, triangle.  
3x36" Pratt & Whitney hollow hex.  
19"x1" Fay & Scott.

No. 23 Garvin Monitor.  
No. 3 Bardons & Oliver, back grd.  
14"x4" Warner & Swasey.

#### DRILL PRESSES.

6" Drees univ. radial.  
42" Economy radial.  
40" Barnes horizontal radials, (2).  
36" Bickford radial, circular base, motor driven.  
18" 4-spindle 2-housing, Foote-Burt.  
14" 6-spindle Allen sensitive.  
14" 4-spindle Allen sensitive.

40" Lodge & Davis, b. g., sliding hd.  
20" Barnes, geared head.  
20" Hoosier, new, (3).  
20" Champion, new, (6).  
12" Allen, bench.  
Plain drills, all sizes.  
Drill presses, assorted sizes.

#### MILLING MACHINES.

35"x8" Ingersoll horizontal slab.  
No. 8 Cincinnati, table 9 $\frac{1}{2}$ x50 $\frac{1}{2}$ ".  
No. 15 Garvin, table 12x42".  
No. 3 Becker Brainerd, table 12x40".  
No. 3 Cincinnati, table 12x47".

Whitney hand miller.  
No. 27 Industrial Works, Lincoln type, table, 7x27".  
Gooley & Edlund, 7 $\frac{1}{2}$ x46" table.

#### PLANERS AND SHAPERS.

48"x48"x16" Pond planer, 3 heads.  
26 $\frac{1}{2}$ "x26"x6" Hendey planer.  
45" Morton draw-cut shaper.  
24" Cincinnati.  
21" American, back gear shaper.

16" Gould & Eberhardt shaper.  
16" Hendey.  
39" Pedrick & Ayer, open side.  
14" Warren shaper.

#### MISCELLANEOUS.

Bolt machine, 4" National.  
Boring mill, 100" Sellers, vert. dbl. hd.  
Boring mill, car wheel, 60" Newton.  
Boring, drilling and milling machine, 17" Bement Niles horizontal.  
Grinder, 13 $\frac{1}{2}$ "x5" Landis universal.  
Grinder, disc, No. 17 Besly.  
Grinder, disc, No. 1 Besly.  
Hammers, 60 lb. Bellefonte upright, (7).

Keyseaters, 18" stroke Morton, (3).  
Keyseater, Mitts & Merrill No. 2.  
Punch presses, all sizes, (105).  
Punch & shear, Industrial Wks. d. e., capacity 4" in 4", squaring 4"x6".  
Slotter, 30" Niles.  
Squaring shear, 32" Niagara grd.  
Tooth rounding machine, Schuchardt & Schutte.

Large assortment of General Machinery. Send for Complete List.

## SECOND-HAND MACHINERY

### FOR SALE BY

**A. A. McLaughlin & Co., - 24 West 2nd St., Cincinnati, Ohio**

Drill, Bickford 8-spindle multiple, capacity 7' 6"	\$1,500.
Drill, Pratt & Whitney universal multiple.....	1,750.
Lathe, 24"x12' Niles, has chuck and face plate.....	1,000.
Sheets rolls, Niles, 50" between housings, 7 rolls 6" dia. meter.....	1,200.

### FOR SALE BY

**Tranter Manufacturing Co.,**

**105 Water St., Pittsburgh, Pa.**

Boring mill, No. 2 Cleveland horiz.  
Drill, 20" Barnes, with equipment.  
Drill, 24" Hamilton, with equip.  
Drill presses, Avey, (2).  
Grinder, No. 3 B. & S. univ., with equipment.  
Grinder, Blount wet emery, & c. s.  
Grinder, Hamilton wet tool.  
Grinder, New Yankee drill.  
Grinder, cutter, small.  
Hack saw, No. 4 Robertson, with equipment.

Lathe, 16" Cincinnati, with equip.  
Lathe, 16" Hendey, with equip.  
Lathe, 18" Bradford, with equip.  
Lathe, engine, 18"x8'.  
Lathe, speed, Wells, with equip.  
Miller, No. 2 B. & S., with equip.  
Miller, No. 3 B. & S. pl., with equip.  
Miller, No. 3 B. & S. vertical with equipment.  
Planer, 3'x8' Gray, with equipment.  
Radial drill, 4' Fossdick, with equip.  
Shaper, 16" Smith & Mills crank.

### FOR SALE BY

**The Canton Machine Shop Company,**

**Canton, Ohio**

Lathe, 13"x 5' Pratt & Whitney, t. a.  
Lathe, 14"x10' Bradford.  
Lathe, 16"x 8' South Bend.  
Lathe, 14"x 8' Carroll-Jameson, t. a.  
Lathe, 20"x10' Pratt & Whitney, t. a.  
Lathe, 24"x10' old type.  
Lathe, 24"x10' New Haven.  
Lathe, 12"x 5' speed lathe, collets and compound rest.  
Metal shingle edging machines, (3).  
Miller, No. 2 LeBlond universal.  
Miller, Brainerd.  
Motor, electric, 5 h. p., d. c.

Paper cutting knife, 5"x36".  
Planer, 26"x26"x6'.  
Planer, 48"x48x10' Niles-B. P., 2 hds.  
Planer, 32"x32"x10' New Haven, 2 hds.  
Punch press, Bliss.  
Punch presses, No. 46 Bliss, weight 25,000 lbs., (6).  
Radial drill, 3' Fossdick.  
Shaper, 16".  
Shears, square, tinnere's, 36".  
Wire straightener.  
25 Small grinder heads.

### FOR SALE BY

**B. C. Allen Machinery Co.,**

**104 S. Clinton St., Chicago**

Arbor press, 30 tons.....\$ 100.  
Bolt cutter, 3" National..... 275.  
Brakes, 8-10', power.  
Drill press, new 20", b. g., p. f. 100.  
Drill press, 20"..... 65.  
Drill press, 24" Barnes, sld. hd. 450.  
Drill press, 2, 3 & 4 spindle.....\$75 up  
Grinder, Norton No. 1 univ.....\$ 300.  
Lathe, 13"x 6'..... 125.  
Lathe, 15"x 6', taper attach..... 400.  
Lathe, 18"x10' Monarch..... 675.  
Lathe, 24"x14'..... 750.  
Miller, No. 34 Fox..... 250.  
Miller, No. 6 Steptoe..... 350.  
Miller, No. 12 Pratt & Whitney 450.  
Miller, No. 25 Becker, b. g..... 475.  
Miller, No. 3 Owen universal. 1325.  
Miller, No. 3 Becker vertical.. 850.

Planer, 24x24x5' Gray.....\$ 650.  
Punch, Long & Allstatter, 12" throat, cap. 24"x24" 1800.  
Punch press, No. 54 Walsh grd. 1250.  
Punch press, No. 19 Bliss..... 300.  
Punch press, No. 4 solid back. 450.  
Punch press, foot..... 45.  
Screw mch., No. 12 P. & W..... 450.  
Shaper, 16" Queen City, b. g..... 650.  
Shaper, 20" American, b. g..... 800.  
Spot welder, Taylor, 36" throat 1400.  
Square shear, 48" Bliss, power, 10 gauge..... 550.  
Sq. shear, Niagara, pwr., 12 ga. 450.  
Square shear, 6' foot power..... 225.  
Square shear, 26" foot..... 150.  
Square shear, 30" foot..... 90.

Several car loads of bargains.

## SECOND-HAND MACHINERY.

### FOR SALE BY

Niagara Sprayer Company.

Middleport, N. Y.

Gridley automatic belt driven machine, 2½", four spindle, serial No. 8023, used only two weeks.

Milling machine, Beam-Smith two-spindle horizontal, with 8'x2' table. Will mill 32" between cutters.

Spur gear cutting machine, E. J. Flather Manufacturing Co. automatic, capacity 30" diameter, 10" face, four diametral pitch in steel.

Will dispose of the above machines at a sacrifice. Owing to a change in design of our products we have no use for same. Write us for prices.

### FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

#### ENGINE LATHES.

13"x 8' South Bend, c. r.

14"x 6' Von Wyck, c. r.

15"x 6' South Bend, c. r.

16"x 8' Lodge & Shipley, compound rest, patent head.

16"x 6' Hamilton.

16"x 8' Lodge & Shipley, t. a.

17"x 8' LeBlond, 3-st. cone, hvy. duty.

18"x 8' Prentice Bros., c. r., g. h.

24"x14' Boye & Emmes, c. r., 3-step cone.

24"x22' Union Machine Co., c. r.

#### TURRET LATHES AND

#### SCREW MACHINES.

1" Millholland, plain head.

2½"x10" Millholland, g. f. h., p. f.

1½" Garvin, g. f. h., p. f.

14" Lodge & Davis, plain head.

24" Davis turret boring and chucking lathe, with forming rest.

32" Lodge & Shipley heavy duty turret boring lathe.

1½" Acme screw mche., p. f. to tur., (3).

28" Gisholt heavy duty turret lathe.

No. 2-A Warner & Swasey g. h. turret lathes, (2).

No. 3-A Warner & Swasey g. h. turret lathe, (3).

2"x24' Jones & Lamson g. h. flat turret lathe.

#### DRILLING MACHINES.

No. 1 Burke, bench, (2).

Single apdl. upright sensitive, (2).

24" Baker, hvy. duty, sta. head.

23" Rockford, sta. hd., b. g. & p. f.

Avey h. a. b. b., bench type.

4 spindle Foote-Burt, adj. hd.

#### MILLING MACHINES.

Bench miller on column, with c. s.

No. 1 U. S. hand, 3-st. cone, c. s., (5).

No. 15 Garvin plain, b. g.

No. 22 Garvin, vertical spindle.

No. 1½ Kearney & Trecker, univ.

No. 3 Brown & Sharpe, plain, taper nose.

No. 6 Becker, vert., rotating table.

12" Pratt & Whitney, horiz., auto.

No. 3 Burke, bench type, hand.

#### GRINDERS.

No. 10 Cochrane-Bly auto. bench saw filing machine.

12"x66" No. 4 Landis univ., complete.

No. 1 Brown & Sharpe, univ.

Type "DE" Hisey-Wolf internal.

No. 12 B. & S. plain, complete.

Gisholt tool grinder.

No. 14-16 Besly, wet ring wheel.

#### HAMMERS AND RIVETERS.

No. 2 High speed riveting hammer.

Coffman post pwr. dr. hammer 25 lbs.

Cady belt drop hammer, 100 lbs.

11½" thr. Grant rivet spinning mche.

No. 203 Grant rivet spinning mche.

#### METAL CUTTING TOOLS & SQUARING SHEARS.

Excelsior power hack saw.

12" Burke metal cold saw.

Higley cold saw.

No. 1 Racine H. S. Hack Saw.

No. 154 Higley cold saw.

#### PUNCH PRESSES.

No. 11 Badger, hand.

#### GEAR CUTTERS.

28" No. 3 Brown & Sharpe auto., (2).

No. 13 Brown & Sharpe auto., (2).

#### MISCELLANEOUS.

Boring mche., 23" swing, Star horiz.

Broaching mche., No. 2 Lapointe.

Crane and hoist, Canton No. 3.

Planers, 22"x22"x5' Putnam, 1 hd., (3).

Planer, 22"x22"x5' Gray, 1 hd.

Polishing lathes, City Machine Co.

Tapper, 1" Burke, bench.

Tapper, 1" friction vertical bench.

Tappers, 1" Rickert-S. horiz., (2).

## SECOND-HAND MACHINERY

### FOR SALE BY

**Frank Toomey, Inc.,**

**127-131 N. Third St., Philadelphia, Pa.**

#### LATHES.

42" Pond car wheel, motor drive.  
36"x16' Sidney, d. b. g., q. c., new.  
24"x14' Sidney, d. b. g., q. c., new.  
19"x 8' Sidney, d. b. g., q. c., new.

17"x 8' Sidney, d. b. g., q. c., new.  
15"x 6' Sidney, d. b. g., q. c., new.  
16"x10' Carroll, d. b. g., q. c., new.  
13"x 5' 6" Carroll, s. b. g., p. c., new.

#### SHAPERS AND PLANERS.

14", 16", 20", 24" Steptoe shapers, new.  
7" Rhodes, precision, new shaper.  
16x16x42" Walter planer, 1 head.

24"x24"x6' Pease 1 head planer.  
36"x36"x10' Cincinnati, 3 hds., motor.  
60"x60"x16' Pond planer, 3 heads.

#### MILLERS.

No. 2 Garvin universal, new.  
No. 2 Putnam universal, used.  
No. 2 LeBlond universal, used.  
No. 3 Burke, hand, new.

No. 4 Brown & Sharpe, plain, used.  
No. 1 Dow plain, new.  
No. 22 Garvin vertical, used.  
No. 24 Oesterlein plain, used.

#### DRILLING MACHINES.

48" Mueller plain, speed box, used.  
36" Dreses plain, cone drive, used.  
32" Superior, s. h., b. g., p. f., new.  
28" Superior, s. h., b. g., p. f., new.

21" Superior, b. g., p. f., new.  
20" Buffalo and Champion, b. g.  
16" Canedy-Otto plain, new.  
4-spindle Superior hi-speed, used.

#### MISCELLANEOUS.

Boring mill, 3" bar Binnse, hor.  
Boring mill, 42" Bullard, vertical.  
Gear cutter, 40"x64" Bement, spur.  
Grinder, No. 1 Fraser univ., new.  
Grinder, 10"x36" Norton plain, used.  
Hack saws, 6x6 & 9x9' Peerless, new.

Keyseaters, Nos. 2 & 4 Catlin, used.  
Pipe machines, 2", 4", 6" Oster, new.  
Pipe machine, 8" Loew, used.  
Punch & shear, No. 53 Beloit, new.  
Press, hyd., Watson & S., 30 tons.  
Shear, No. 46 Beloit, alligator, new.



## Hitchcock's List

Goes to the Heart of 96% of  
the Best Plants in the Country

The above statement is the result of careful mail inquiries directed to thousands of the larger tool-using concerns.

# Harris Brothers Co.

1475 W. 35th St., Chicago, Ill.

## Turret Lathes, Bar and Chucking.

24" Steinle, turret tool post on carriage and hex. turret on bed, rapid traverse.  
24" Gisholt, same, (10).  
28" Pond, same, (2).  
24" W. P. Davis, (2).

8" No. 1 Pratt & Whitney hand screw mch., 7/16" auto. ck. cap.  
14" Canada, 3-hole set-over tur., (10)  
18" Milwaukee, turret on bed, (10)..  
8" No. 1 Pratt & Whitney hand screw mach., 7/16" auto. ck. cap.

## Gear Cutters, Keyseaters, Grinders.

Morton, 18" stroke, for 1 1/2" wide.  
Morton, 24" stroke, for 2 1/2" wide.  
12"x36" Fitchburg plain, (3).  
9"x15" Ford Smith plain.  
10"x48 B. & S. plain grinder.  
16x60 Landis crank shaft grinder.

Grinder 6x32 Norton Cylindrical.  
American Blower Co., (Sirroco Type) 5/2"x7/4", upper casing 4"x8. Double Inlet 36". Upper Cone shaped quadruple Outlet 36". Capacity 25,000 cu. ft. per min. (12).

## Hammers, Plate Bending Rolls, Punch Presses.

Erie 800 lbs. single frame, (2).  
Erie 1,500 lbs. single frame.  
1000 lb. Lennox, friction board drop.  
1250 lb. Massillon, steam drop.  
6" New Doty, capacity 1" plate.  
30" Q. C. sgl. end cap. 1/2"x3/4"  
Wiener T40 shear for 15"x1" Beams,  
4"x1/2" angle, wt. 20,000 lbs.  
No. 56 D.G.G. Ferracuta, str. sided.

No. 55 D. G. G. Ferracuta, straight sided, (2).  
No. 27 Bliss, knuckle joint.  
Hydraulic presses, accumulators and pumps.  
Ferracuta E57 Vertical Straight Side Bed, weight each, 140,000 pounds, Punch Presses, (2).

## Drill Presses and Boring Machines.

8-spd. Baush, univ. adjustable 20" circular head, capacity 1".

Footte-Burt 2 spd. adjustable vert.

## Planers, Shapers and Slotters.

24"x24"x5' Gray.  
38"x38"x12' Niles, 2 heads.  
20" Pedrick & Ayer, 2 tables.

12" Putnam rotary table slotter.  
18" Betts rotary table slotter.  
18" & 20" Niles rotary table slotters.

## Miscellaneous.

Air compressor, 2650' Class W. N. Twin Angle Compound Sullivan, 100 lb. pressure. Direct connected to 400 h. p., 2200 volt, 3 phase, 60 cycle motor. Low pressure cylinder 22, horizontal high pressure cylinder 13" vertical, stroke 14" with 3 phase intercooler; or will convert into a Belt Driven Single or Double Unit, or will offer as a single unit, direct connected to 250 h. p. Westinghouse, 440 volt, 3 phase, 60 cycle motor.

Bolt cutter, 1" Acme, 4-spindle.  
Centering machine, 6" Pratt & Whitney.  
Centering machine, 9" Whiton.  
Cutting-off machines, for 2 1/2", 3", 4" & 6" pipe and shafting.  
Motors, 8 Westinghouse, 250 h. p., 440 volt, 60 cycle, 3 phase, speed 514 r. p. m., Type C.C.L. squirrel cage, with base, with starters.  
Nut facing machines.  
Nut tapper, Acme 4-spd. 1 1/2" vert.  
Pipe threaders, Curtis 2 1/2-4 & 6.

Write for Industrial Bulletin No. 204

# "New York's Greatest (learning House—J. J. McCabe Lathe and Machinery Corporation"

## When you are offered LOW Prices—

do they really mean that the Machines quoted are in poor condition? Such Tools can be had at any time—at low prices—anywhere.

Or does it represent ability of the Machinery House with whom you are dealing to offer something at a low figure, because of their organization and system of buying Modern Tools, "Right."

What you need to be sure of is your money's worth.

Buy the "Right" tools—the kind

**SLOTTERS**  
24" Niles-B.-P. (like new), Motor Drive, complete with motor.  
10" stroke, Betts, cone drive.

**PLANERS**  
48"x48"x18' Pond M. T. Co., 2 heads.  
48"x48"x14' Sellers, 3 heads.  
30"x30"x8' Woodward & Powell.

**MILLING MACHINES**  
Vertical Brown & Sharpe No. 5, table fd. 52"; with circular milling att.

Vertical Cincinnati No. 2.

Mfrs. style Hendey No. 5, with q. c.

Plain No. 3 Cincinnati, working surface table 48"x12"

Plain No. 23 Brainerd, working surface table 48"x14"

Plain Keysat Miller, hor. and vertical spindles, table 60"x12", Newton Machine Tool Co.

**LATHES (USED)**  
Two Heavy Triple Geared Long Beds—50" 60' bed, 50' between centers; triple geared face plate 48" diam. 94" face; Israel Johnson, Jr. & Co., 50"x30", 20' between centers; Johnson.

**OTHER LATHES**  
48"x18' New Haven, triple geared.  
50"x20' Pond, triple geared.  
50"x14' American, q. c., triple geared.  
36"x20' Putnam.

36"x14' Bridgeford, grd. hd. q. c., motor dr.  
30"x22' Putnam, grd. hd., motor drive.  
28"x18' Johnson, q. c., taper att.  
24"x12' Putnam, q. c., taper att.  
20"x10' American, quick change, grd. hd.  
18"x10' Schumacher & Hoye, taper att.  
18"x8' American, q. c., taper att.

**DOUBLE SPINDLE LATHES**  
38/60" swing, 26" bed, 20' centers, McCabe,

with geared face-plate, chuck-jaws, etc.,

### AIR RIVETER

19" gap Albree, capacity 14" rivets.

### GRINDERS

Plain Roll Grinder, table 66"x12", takes 36" centers, Bridgeport, like new.

Universal Landis, 16" Swing, 60" centers.

Universal Landis, 10" swing, 30" centers.

Universal Troquois, 12" swings, 30" centers.

### BENDING ROLLS

14" 2" between housings, drop end Hilles & Jones, top roll 11" diam., two lower rolls 8" diam., one grooved, center support for lower rolls, friction clutch pulley drive.

10" 2" bet. housings, drop-end, top roll 10 1/2" diam., two lower rolls 8", wt. abt. 20,000 lb. Motor or belt drive.

### HYDRAULIC RIVETER

8' gap Benoit Miles Bull Riveter, with piston and ram for accumulator, overhead crane, hoist, etc., cap. up to 1 1/2" rivets.

### MISCELLANEOUS

Double Frame Steam Hammer—12,000 lbs., Morgan.

Carwheel Boring Machine—48" swing, Sellers, with crane.

Cranksaft and Forge Cold Saw, equipped with one 30" and three 24" inserted tooth saw blades, cap. up to 9" round, Espen-Lucas.

**Shaft Straightening Machine—Mc-dart**, 6-roll type, 3 top, 3 bottom, for straightening up 4 1/2" diam., any length.

### NEW LATHES

All-steel Gear Quick-change Mechanism. 36"x18" bed, 11" between centers: 3-step cone, double back geared.

32"x20" bed, 13" between centers: 3 step cone, double back geared.

32"x16" bed, 9" between centers: 3 step cone, double back geared.

32"x14" bed, 7" between centers: 3 step



Buy the "Right" tools—the kind that don't have to be made "right" by Re-building. Overhauling or Re-making over.

McCabe never handles that kind.

# McCABE'S TOOLS

are "right" for Quality, Condition, Serviceableness, and Prices.

4 pages of our complete stock—in our latest stock-list.

## HORIZONTAL BORING MACHINES

### "KNEE TYPE"

- 4 1/2" bar Niles, 64" power raise to table.
- 4 1/2" bar, Bement Miles, 62" power raise.
- 4 1/2" bar, Bement-Miles, 62" power raise.
- 3 1/2" bar, Bement, power raise.

### RADIAL DRILLS

- 5' arm, Dresses, cone drive.
- 4' arm, Dresses, cone drive.
- 4' arm, Cincinnati-Bickford, speed box.

**J. J. McCabe Lathe & Machinery Corporation, 149 Broadway, New York**

**"The RELIABILITY of McCabe's Used Machinery Is Known the World Over"**

with geared face-plate, chuck-jaws, etc., like new.

26/48" swing, 16" bed, 12" centers, McCabe, with geared face-plate, chuck-jaws, etc., like new.

26/48" swing, 14" bed, 8" centers, McCabe, with geared face-plate.

26/48" swing, 12" bed, 6" centers, McCabe, with plain face-plate.

## DRIVING-WHEEL LATHE

86" swings, with quartering att., Bement, double hd., turns both wheels same time.

## LO-SWING LATHE

34"x80" Fitchburg, complete equipment.

## TURRET LATHES

28" Pond, Rigid type, 4 1/2" hole, rapid traverse to turret.

21" Gisholt, like new, 32" in gap.

20" Potter & Johnston, 3" hole, grd. hd.

3x36" J. & L. Flat Turret, bar equipment.

2x24" J. & L., bar and chucking equipment.

14" Automatic Screw Machine, Hartford.

## GEAR CUTTERS

20" Bevel Gear Planer, Gleson.

36" Gould & Eberhardt, spur and bevel.

36" Fellows Gear Shaper.

56" Eberhardt Bros., for spur.

## PUNCHES AND SHEARS

Horizontal Punch, 60" gap, Hilles & Jones,

wt. 68,000 lbs., art. for motor, no motor.

Punch & S., single-end, 50" gap, 33,000 lbs.

Punch & Shear, single-end 42" gap, with motor, Hilles & Jones.

Punch & Shear, double-end, 36" gap, belt-drive, Long & Allstar.

Portable Punch, Pella.

32"x16" bed, 7" between centers: 3 step cone, double back geared.

29"x16" bed, 10" between centers: 3 step cone, double back geared.

21"x14" bed, 10" between centers: 3 step cone, double back geared.

21"x12" bed, 8" between centers: 3 step cone, double back geared.

21"x10" bed, 6" between centers: 3 step cone, double back geared.

21"x8" bed, 4" between centers: 3 step cone, double back geared.

18"x12" bed, 8" between centers: 3 step cone, double back geared.

18"x10" bed, 6" between centers: 3 step cone, double back geared.

18"x8" bed, 4" between centers: 3 step cone, double back geared.

16"x10" bed, 6" between centers: 3 step cone, double back geared.

16"x8" bed, 4" between centers: 3 step cone, double back geared.

16"x6" bed, 2" between centers: 3 step cone, double back geared.

14"x8" bed, 4" between centers: 3 step cone, double back geared.

50"x13 1/2" bed, 6" between centers: American, quick change, triple-gear, at big reduction from new price.

24-40" swing, 14" 16" beds—McCabe's "All-in-one" Lathe, Geared Head, qck.-ch., and single pulley drive; speeds, feeds, and every convenience for either size—40" triple-gear, and 24" dble. back-gear.

All-in-one—at a thousand to two thousand dollars less than the cost of other Geared Head 40" Lathes.

# Back to Lower Prices

In order to avoid moving our stock to our new Wareroom, we are offering our entire stock of used Machines and many new Tools at sacrifice prices. Do not ask us for a list but specify exactly what you want and we will quote you by return mail or wire, if necessary. The following are a few Machines picked at random from our stock:

## LATHES

9" to 13" Barnes, h. s., cp. r., new.  
10"x5" Summit, nearly new, (5).  
13-15-16 and 18 O. & S., h.s., c.r., new.  
18"x 8" Fitchburg, hol. spdl., cp. r.  
20"x10" Hamilton, double back gear.  
24"x12" Fitchburg.

24"x12" Fay & Scott.  
25"x14 Schumacher & Boye.  
36"x25" Putnam, geared head.  
12"x5" Precision tool room, (5).  
8"x60" Fitchburg Lo-Swing.  
21" and 24" Gisholt, turret.

## TURRET LATHES and SCREW MACHINES

24" Steinle, 6 1/2" hol. spdl., grd. hd.  
1 1/2" Tilted turret hand screw mche.  
2x24 & 3x36 J. & L., dbl. equipment.  
1 1/2" S. & K. hand screw machine.

No. 2 Warner & Swasey hol. hex.  
Nos. 52, 53 & 56 National Acme.  
21" and 24" Gisholt.  
No. 0 B. & S. Automatics, (3).

## SHAPERS

14" Niles, traveling head.  
14" Smith & Mills, crank.  
16" Rockford, crank.

24" Walcott, geared.  
20" Smith & Mills, geared.  
16" Springfield, crank, back grd.

## PLANERS

24x24x 6' Hendey.  
24x24x 6' Pease.  
36x36x10' Sellers, 2 heads.  
44x44x12' Pond, 4 heads.  
48x48x16' Bement-Miles, 2 heads.

54x54x16' Sellers, 4 heads.  
60x60x17' Butts, 2 heads.  
60x60x20' Sellers, 4 heads.  
66x66x20' New Haven, 2 heads.  
84x84x32' Putnam, 4 heads.

## PRESSES

No. 856 Toledo, 36" stroke, 15,000 lbs.  
Perkins, dbl. crank, 16x24 bolster.  
No. 35 Niagara, Stiles type, (2).

No. 3 Robinson, 4300 lbs., o. b. i.  
No. 6-A Willard 3400 lbs. inclinable.  
No. 1 1/2 Robinson 1500 lbs. inc., (3).

## DRILLS and RADIALS

Henry & Wright sgl. spdl., high spd.  
3 1/2" Canedy-Otto plain, new.  
Sensitive I, 2, 3, 4 and 6 spindle.

24", 26", 28" and 32", sliding head.  
3" Morris plain, gear box drive.  
4 1/2" Prentice, gear box drive.

Six new standard makes 20" Drills, each \$125. 50.

## MILLING MACHINES

No. 25 Becker plain, (3).  
Ames, Lincoln type, 10"x40" table.  
No. 2 Kempsmith universal.  
No. 3 Brinard, 30x7 table.

No. 1 1/2 B. & S. plain.  
No. 2 H Brown & Sharpe plain.  
Briggs type "A" high duty, 24x8 table.  
No. 32 Kempsmith Lincoln type, (3).

## GRINDERS

No. 78 W. & M. wet surface.  
6x18 Landis, plain.  
10x24 Norton plain.  
Gisholt, universal tool.

Capital, internal, practically new.  
Landis 10x24 universal.  
Litter 10x20 universal.  
36" and 66" Yates plate.

## MISCELLANEOUS

Band saws, metal, Klemm, (2).  
Boring mill, 12", 2 swivel heads.  
Brake, 8' Keene, for 18 gauge.  
Cold saw, Higley No. 11 1/2.  
Compressors, 9x8 and 12x10, new.  
Gear cutter, G. & E. 36".  
Gear cutter, Whiton 36"x9 1/2" face.  
Hammers, 40 lb. Bradley, helve, (2).

Hammer, Toledo, 5,000 lb. fric. brd.  
Hammer, Canton 6,000 lb. b.g. drop.  
Motors, 1 to 50 h.p., 3 ph., 220 v., G.E.  
Oil groover, Garvin, nearly new.  
Oil separator, Springfield.  
Pumps, Gould triplex, 6 1/2"x5" & 7x8".  
Shears, 5' & 8' for 10 gauge.  
Shear, 8' Robinson, for 18 gauge.

# Osborne & Sexton Machinery Co.

Columbus, Ohio

Dayton Office: 1118 Lindsey Building, Phone Main 1524

# New Machinery For Sale

In Stock at Chicago and New York

## Lathes

24"x13' Chard, q. c. g., d. b. g.  
20"x11' Chard, q. c. g., d. b. g., (2).  
20"x10' Wickes, q. c. g., d. b. g.  
16"x6' Whitcomb-Blaisdell.  
14"x 8' Cisco, q. c. g., d. b. g.

12"x 5' 6" Davis tool room,  
6"x30" and 6"x36" Dalton bench.  
Full line, Rivett precision bench.  
Full line Stark precision bench.

## Drilling Machines

3' Wisconsin sensitive radial.  
32" Cleveland sliding head.  
28" Cleveland sliding head.  
25" Cleveland upright.  
23 1/2" Cleveland, upright.  
23" Snyder upright.  
22 1/2" Cleveland upright.

21" Cleveland upright, (5).  
20" Wisconsin, all-g geared, (2).  
20" Canedy-Otto, upright, (4).  
14" U. S.  
Belt and motor driven bench.  
Van Dorn portable electric.

## Boring and Drilling Machines

No. 9 Pawling & Harnischfeger, (2). | No. 12 Pawling & Harnischfeger,

## Milling Machines

No. 2-B Fox plain.  
Nos. 1-A, 1-B and 0-B Fox plain.

Burke bench.  
U. S. No. 1, hand.

## Grinders

No. 3 Modern universal.  
No. 1 Wilmarth & Morman univ.  
Lafayette universal.  
10"x32" Ott universal.  
No. 103 Rivett internal.  
No. 2 Reid surface.  
6"x6" Ott internal.

Webster & Perks, No. 2 universal.  
No. 1 Norton cutter and tool.  
Grand Rapids drill—various sizes.  
Partridge floor stands, (all sizes).  
Strand electric, flexible shaft.  
Dumore, (all sizes).

## Shapers

24" Milwaukee.  
20" Milwaukee heavy duty.

16" Milwaukee.  
7" Rhodes horizontal.

## Hack Saws

Peerless, (all sizes).  
No. 1 Racine.

6"x6" Starrett.  
6"x6" Economy.

## Miscellaneous

Arbor presses, Atlas, all sizes.  
Buffing machine, No. 2 Blount.  
Filing machines, Nos. 2 & 3 Barry.

Press, Lebanon, foot.  
Shear, 18-H Lenox, throatless.  
Tinnern's rolls, Pexto.

## USED MISCELLANEOUS

Cold Saw, No. 15 Lea Simplex.  
Lathe, 14"x5' Dreses Monitor. (2).

Lathe, 24" Steinle turret.

# Dale Machinery Co., Inc.

Formerly

DALE-BREWSTER MACHINERY CO., INC.

541-7 W. Washington Blvd., - - - Chicago

54-60 Lafayette St., - - - New York

Address all inquiries attention Department A

# Bertolette Machine Tool Co.

## ENGINE LATHES

- 60"x20' Pond, face plate drive, practically new.
- 48"x36' Niles, raising blocks to swing 60".
- 36"x14' Niles, face plate drive, 104" centers.
- 28"x15' Schumacher & Boye, quick change, 9' centers.
- 26"x10' Bridgeford, quick change, NEW. (4).
- 24"x14' Lodge & Shipley, quick change, taper attachment.
- 24"x12' Lodge & Shipley, quick change, taper attachment.
- 20"x10' Lodge & Shipley, quick change, 72" centers.

## GEAR CUTTERS and KEYSEATERS

- 60" Gould & Eberhardt Gear Cutter, practically new.
- 36" Brainard Gear Cutter, late type.
- No. 2 Baker Bros. Keyseater, capacity up to 2".

## BORING MILLS and SLOTTERS

- 42" Bullard Vertical, 2 swivel heads.
- 38" Bullard Vertical, 2 swivel heads.
- 9" Bement Slotter, rotary table 24" dia.
- 6" Newton Slotter, rotary table 18" dia.

## DRILLING MACHINES

- 4½' Dreses Plain, back geared, cone drive, tapping attachment.
- 4' Fosdick Plain, single pulley drive, tapping attachment.
- 3½' Baush Plain, cone drive.
- 28" Barnes, back geared, sliding head.
- 24" Gould & Eberhardt, back geared, sliding head.
- 22" Bickford, back geared, sliding head.

## GRINDERS and SHAPERS

- 84" Diamond Heavy Face Grinder, motor drive.
- 12"x36" Modern Plain Self-Contained, single pulley drive.
- 16" NEW Cincinnati Barker Back Geared Crank Shaper.
- 16" Hendey Geared Shaper.

## PIPE and BOLT MACHINES

- 6" Curtis & Curtis Hand, dies 2½" to 6".
- 4" Curtis & Curtis Power, dies 1" to 4".
- 1½" Putnam Bolt Cutter, quick-opening die head, dies ¾" to 1½".

Office: 357 West Side Av.,  
Machinshop and Warehouse 220-228 Orient Av.,  
Jersey City, N. J.

# ReMANUFACTURED - (ORIGINATED BY US) - MACHINE TOOLS

EVERY ReMANUFACTURED MACHINE TOOL in our place represents an unusual BARGAIN. A card will bring our latest GREEN LIST containing 2000 machine tools. We welcome inspection of our plant and our process.

## LATHES.

- 1-3"x60" Fitchburg Lo-Swing.
- 8-8"x60" Fitchburg Lo-Swing.
- 1-8"x84" Fitchburg Lo-Swing.
- 1-Bridgeford heavy duty d.e. axle.
- 31-14"x 6' Reed ex. hvy. pl. turning.
- 7-16"x 6' Reed.
- 1-16"x 7' Reed.
- 12-17"x 6' LeBlond mfg'r's. auto.
- 21-18"x 8' Boye & Emmes, belt fd.
- 8-18"x 8' Boye & Emmes, q. c. g.
- 1-18"x10' Whitcomb-B., gd. hd.
- 21-19"x 8' LeBlond, q. c. g., c. r.
- 28-19"x 8' LeBlond, hex. carr. tur.
- 31-19"x 8' LeBlond, p. f. turret.
- 14-20"x 8' LeBlond, c. r., q. c. g.
- 97-20"x 8' American, c. r., q. c. g.
- 12-20"x 8' American, p. f. turret.
- 3-20"x 8' American, motor arr.
- 3-20"x10' Lodge & S., grd. hd.
- 18-21"x10' LeBlond, c. r., q. c. g.
- 34-21"x10' LeBlond, carr. turret.
- 19-22"x 8' Davenport.
- 1-22"x 8' Lodge & S., motor arr.
- 7-25"x10' LeBlond, c. r., q. c. g.
- 13-26"x 9' Bridgeford, c. r., q. c. g.
- 105-26"x10' Bridgeford, c. r., q. c. g.
- 23-26"x12' Bridgeford, c. r., q. c. g.
- 2-26"x16' Bridgeford, c. r., q. c. g.
- 2-26"x18' Bridgeford, c. r., q. c. g.
- 2-26"x20' Bridgeford, c. r., q. c. g.
- 32-26"x10' Niles-B-P., c. r., q. c. g.
- 1-36"x12' Walcott, c. r., q. c. g.
- 1-36"x12' Wickes, c. r.
- 1-36"x12' Putnam, c. r., semi q. c. g.
- 3-36"x12' Putnam, motor drive.
- 1-29"x14' Walcott, c. r., q. c. g.
- 6-30"x11' American, geared head.
- 1-30"x20' American, geared head.
- 2-30"x11' Houston, Stanwood & G.
- 1-30"x12' American.
- 19-32"x12' Pittsburg, c. r., q. c. g.
- 3-36"x14' Johnson, triple geared.
- 4-36"x37' Niles - Bement - Pond, geared head.
- 2-36"x19' Johnson, triple geared.

## LATHES—Continued.

- 5-40"x12' Fifield, triple geared.
- 1-40"x18' Fifield, triple geared.
- 2-45"x24' Pond, triple geared.

## BORING MILLS.

- 1-10' Niles vertical.
- 1-24" bar Binase horizontal.
- 1-4" bar Niles horizontal.
- 1-Beaman & Smith horiz., 2 heads.
- 1-2 spindle Eapen Lucas, 2 heads.

## SHAPERS AND PLANERS.

- 2-30" Niles-Bement-Pond.
- 4-26" Niles-Bement-P., motor dr.
- 4-26" Niles-Bement-P., motor arr.
- 2-26" Niles-Bement-Pond, belt dr.
- 2-26" Kelley, back geared.
- 3-36"x12"x14' N.-B.-P., frog & sw.
- 1-56"x36"x10' Gray, 2 heads.
- 1-72"x72"x14' Niles, 4 heads.
- 1-96"x72"x20' Bement-M., 4 hds.

## MISCELLANEOUS.

- 1-1" Pratt & Whitney screw mche.
- 3-2" Pratt & Whitney screw mchs.
- 12-No. 2 W. & S. turret lathes.
- 5-No. 2 Foster screw machines.
- 3-No. 4 Wood turret screw mchs.
- 1-No. 4, 13" Southworth scr. mch.
- 4-No. 75 4-sp. National Acme automatic screw machines.
- 1-No. 6 B. & S. screw machine.
- 42-No. 7-H Becker Lincoln millers.
- 63-No. 34 Fox, power feed millers.
- 2-type B 34" Briggs millers.
- 1-No. 1 Dow plain miller.
- 1-No. 2 B. & S. vertical miller.
- 2-No. 4-B Becker vertical miller.
- 2-No. 4 Cincinnati pl. miller, s.p.d.
- 46-12" Cincinnati pl. millers.
- 1-30"x12' Newton slab miller, 3 sp.
- 1-48"x10' Newton slab miller.
- 1-20"x10' Beaman & Smith, slab miller, 3 heads.
- 1-26"x 8' Ingersoll slab miller, 2 heads, motor.

Write for our Green List describing these and many others

**HILL, CLARKE & CO. OF CHICAGO**  
649 W. WASHINGTON BLVD., CHICAGO, ILL.

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Standard Machine Tools  
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etc.

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CLEVELAND

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PITTSBURGH

# Second Hand Machine Tools

## BORING MACHINES.

4" bar Detrick & Harvey floor type.  
No. 3A Universal horiz., table type.  
No. 2 Beaman & Smith, floor type,  
4" spindle, motor drive.  
2 1/2" bar Bement-Niles horizontal.

No. 1-3" Lucas horizontal.  
3 1/2" Colburn vertical, turret head.  
30" Niles vertical, 2 heads.  
42" Bullard vertical, 2 heads.

## DRILLS.

1 spindle Henry & Wright b. b.  
3-sp. Henry & Wright sens. b. b.  
3 spindle Taylor & Fenn sensitive.  
20" Prentice Bros. sliding head, b. g.  
20" Rockford, tapping att.  
24" Pratt & Whitney, b. g. & p. f.  
42" Cinn-Bick. sliding head, b. g.,  
p. f., cone drive, tapping att.

No. 1 Rockford horizontal.  
20" Baker Bros. style M, 4 h. p. mtr.  
No. 310 Baker Bros. heavy duty.  
6-sp. Hendey, pwr. feed to each spdl.  
No. 30-12 spindle Baush multiple.  
No. 12-8 spindle Natco multiple.  
No. 22-16 spindle Natco multiple.

## GRINDERS.

3"x18" Norton, plain cylindrical.  
6"x32" Norton, plain cylindrical.  
10"x48" B. & S. plain cylindrical.  
10"x30" Landis plain cylindrical.  
No. 18-12"x120" Landis plain cyl.  
18"x96" Norton plain, self contained  
motor drive.  
No. 3 Modern universal.  
No. 3-12x40 Modern universal.  
10" Garrigus rotary surface.

B. & S., oscillating ball race.  
No. 11 Rivett oscillating.  
No. 5 Rivett hand feed oscillating.  
No. 34 Van Norman internal.  
No. 6 Rivett internal.  
20" Besly disc.  
No. 6 A Bryant internal.  
18" Ney double disc.  
No. 60 Heald cylinder.

## LATHES.

No. 5 Rivett bench, slide rest.  
11x5 Seneca Falls, c. r., p. c. f.  
13"x6" Willard c. r., p. c. f.  
14"x8" Reed c. r., p. c. f., t. a.  
16"x8" Flather, q. c., c. r., p. c. f.  
18"x8" Prentice Pros. geared hd., ck.  
18"x8" Hendey c. r., p. c. f., tap. att.  
20"x19" Reed, c. r., p. c. f.

22"x8" Schumacher-Boye, c. r., p. c. f.  
22"-24"x9" Lodge & Shipley selective  
head, manufacturing.  
28"x12" Putnam, c. r., d. b. g.  
32"x14" Hamilton, c. r., p. c. f.  
38"x20" New Haven, c. r., p. c. f.  
56"x24" Wood & Light, c. r., p. c. f.

## MILLERS.

No. 14 Garvin plain.  
Rivett hand, precision.  
No. 2 Cincinnati plain, all feeds.  
No. 3 Cincinnati plain, cone drive.  
No. 4 Cincinnati plain, all feeds.  
No. 2-A Kempsmith plain, b. g.

No. 1 1/2 LeBlond univ., motor drive.  
No. 2 LeBlond univ., belt drive.  
Nos. 3 & 4 Cincinnati high pwr. vert.  
No. 4-B Becker vertical.  
No. 12 B. & S. Manufacturing.

## TURRET MACHINES.

16" Acme univ. friction back gear.  
20" Steidle heavy duty, geared head.  
20x10 Fay & Scott univ. turret lathe.  
24x10 Lodge & Davis turret.  
24" Gisholt turret, 6" hollow spdl.  
Fay automatic turret lathe.  
2"x24" J. & L. flat turret, bar equip.  
3"x36" J. & L. chuck or bar equip.

3 1/2"x44" Cincinnati flat turret, bar  
and chuck equip.  
4" Bardons & Oliver turret, motor.  
No. 2 1/2 Garvin screw machine.  
No. 3 Windsor w. l. screw mach.  
4"-4 spindle National Acme auto.  
1 1/2"-4 spindle National Acme auto.

## MISCELLANEOUS.

Broaching mach., Nos. 4 & 5 J. N.  
Lapointe.  
Compressor, 8x8 Clayton single air.  
Gear cutter, 36"x9" B. & S. spur.  
Pipe mche., No. 84 Curtis & Curtis.  
Planer, 24x24x6 Flather, one head.  
Planer, 30x30x8 Pond, 2 heads.  
Planer, 36x36x12 Cincinnati, 4 heads.

Planer, 36x30x14 Cincinnati, 3 heads.  
Planer, 48x48x15 Sellers, 3 heads.  
Planer, 60x48x14 Gleason, 2 heads.  
Profiler, No. 13, P. & W., 1 spindle.  
Punch & shear, 10" throat, 1" cap.  
Shaper, 14" P. & W. crank.  
Shapers, 15" and 24" Hendey friction.

**HENRY PRENTISS & CO.**  
INCORPORATED  
NEW YORK, N. Y. Warehouse, JERSEY CITY

# 26" Bridgeford Engine Lathes

Replaned and Rebuilt—80-90% New



## 2-26"x14' Bridgeford Engine Lathes

D. B. G., Q. C., S. C.  
Compound and steady rests.  
3-step cone for  $5\frac{1}{2}$ " belt.  
Bed heavily ribbed every 2".  
 $2\frac{3}{4}$ " hollow spindle Tailstock  
bearing on V's 20".  
8" between centers.  
C-C of carriage V's 19".  
 $\frac{3}{4}$ " "T" slots on carriage.  
C-C of tailstock V's  $12\frac{1}{2}$ ".

Screw 2" dia. x 2" pitch.  
Front bearing  $7\frac{1}{2}$ " l. x  $4\frac{1}{4}$ " dia.  
(Bronze, ring oiling).  
Dia. TS spindle 4".  
Rear bearing  $5\frac{1}{4}$ " l. x  $3\frac{1}{4}$ ".  
Swing over carriage 19".  
Front gear 3" face.  
Swing over compound rest 12".  
Double gear  $1\frac{3}{4}$ " face.

**Price, Each, \$1450.00**

1-26"x16' Bridgeford Double Back Geared, Quick Change Engine  
Lathe. Same as above, with 10' centers.

**Price, \$1600.00**

1-26"x18' Bridgeford Double Back Geared, Quick Change Engine  
Lathe. Same as above, with 10' centers.

**Price, \$1750.00**

*We will pay your expenses to inspect  
and purchase one of these Lathes.*

**J. L. LUCAS & SON, Inc.**

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BRIDGEPORT, CONN.



# Drilling Machines

<b>2-14' No. 210 Rockford 2-spindle Sensitive Drill Presses</b> , 12x24" table, 28¾" table travel. Fair condition. Each.....	<b>\$ 75.</b>
<b>14' No. 215 Rockford 3-spindle Sensitive Drill Press</b> , 12x30" table, 28¾" table travel. Fair condition .....	<b>75.</b>
<b>10-15' Barnes Plain Drill Presses</b> . Good condition. Each.....	<b>70.</b>
<b>20' Barnes 3-spindle All Geared Gang Drill</b> , independent heads, 14"x60" table, power feed. Fine condition.....	<b>985.</b>
<b>20' Superior Drill Press</b> , sliding head. Good condition.....	<b>150.</b>
<b>3-20' Weigle Plain Drill Presses</b> , ratchet and worm hand feed, swivel adjustable table. Good condition. Each.....	<b>155.</b>
<b>4-21' Wiegle Sliding Head Drill Press</b> , back geared, power feed; belt guard and improved belt shifters. Good condition. Each.....	<b>475.</b>
<b>21' Superior Sliding Head Drill Press</b> , back geared, power feed.....	<b>260.</b>
<b>22½' Barnes Plain Drill Press</b> , back geared, Good condition.....	<b>195.</b>
<b>22½' Barnes Drill Press</b> , back geared, power feed, tapping attachment. Good condition.....	<b>250.</b>
<b>22½' Barnes 4-spindle Gang Drill</b> , stationary head, each spindle equipped with automatic feed; No. 4 Morse taper. Good condition .....	<b>1,250.</b>
<b>3-24' Superior Drill Presses</b> , stationary hd., back geared, power feed. Good condition. Each...	<b>310.</b>
<b>28' Superior Drill Press</b> , sliding head, back geared, power feed. Good condition.....	<b>625.</b>
<b>3-32' Superior Drill Presses</b> , sliding head, back geared, power feed. Good condition. Each ..	<b>725.</b>
<b>16' Sipp Single Spindle High Speed Drill</b> , ball bearing throughout, sliding head, power feed. Good condition.....	<b>325.</b>
<b>2-16' Sipp 2-spindle High Speed Drill Presses</b> , ball bearing throughout, sliding head, automatic belt shifter. Good condition. Each .....	<b>500.</b>

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**Peninsular Machinery Co.**  
431 E. Jefferson Ave., Detroit, Mich.

# SIMMONS

## PLANERS

- 24"x24"x 8' Cincinnati, 1 head, 4-speed gear drive.  
 26"x26"x 8' Gray, 1 hd. on cross rail.  
 30"x30"x18' Cincinnati, 2 heads.  
 36"x36"x20' Woodward-Powell, 4 heads, rev. type motor.  
 42" Newton Rotary, belt or mtr. dr.
- 42"x42"x12' Simmons openside, 2 heads, NEW.  
 48"x48"x28' Cincinnati, 2 hds, NEW.  
 48"x48"x20' Ridgeway, 4 heads.  
 60"x60"x20' Woodward-Powell, 4 heads, 35 h. p. motor, rev.

## LATHES

- 84"x26' Putnam heavy, d. c. motor.  
 60"x29'-56' Niles-Bement-Pond, motor drive, NEW, (4).  
 57"x23' Putnam, taper attachment.  
 48"x29'-56' Niles-Bement-Pond, motor drive, NEW, (8).  
 42"x20' Niles-B.-P., motor drive.  
 42"x18' Bement heavy duty, cone dr.  
 36"x18' Putnam hvy duty, triple grd.  
 36"x34' Bridgeford, geared head, c. g., NEW, (6).  
 36"x14' Putnam standard type, all geared head, (2).
- 28"x18' Pond, all grd. hd., complete.  
 27"x24' LeBlond heavy duty, d. b. g., q. c. g., NEW, (8).  
 27"x18' LeBlond heavy duty, q. c. g., with motor, (8).  
 24"x14' Crawford, taper attachment.  
 24"x18' LeBlond heavy duty, motor.  
 18"x 8' Lodge & Shipley.  
 14"x 6' Monarch complete, taper attachment, (2).  
 11"x 5' Seneca Falls "Star" lathes, NEW, (2).  
 9" Porter Cable mfg. lathes, (4).

## BORING MILLS

- 12' Bement Extra Heavy Boring and Turning Mill, 2-swivel heads.  
 54" Bullard Production Type Mill, excellent condition  
 42" Bullard New Era Type Vertical, 4-jaw chuck, complete.  
 36" Bullard New Era Type Vertical, cutting lubricating system.  
 34" Bertram Vertical Turret Head Boring Mill.

## MILLERS

- No. 2 Brown & Sharpe vertical.  
 No. 2 LeBlond plain.  
 No. 3 Hendey plain, std. equip.  
 No. 3 Cincinnati vertical.  
 No. 3 Cincinnati hi-power plain.  
 No. 5 Brown & Sharpe vertical.  
 No. 6 Whitney & Standard hand millers, (20).  
 Pratt & Whitney heavy duty slab.
- Newton, Planer Type, 34' between housings  
 Gooley & Edlund, type A. & B.  
 No. 36 Chicago hand miller.  
 Pratt-Whitney 4" spline millers, (4).  
 No. 12 Brown & Sharpe, Lincoln.  
 Carter-Hakes, Lincoln type.  
 Cincinnati 12" plain mfg., (2).

## RADIAL DRILLS

- 4' Hammond high speed, NEW.  
 5' Bickford pl., arranged motor dr.  
 6" Pond plain, belt drive.  
 6' Reed Prentice pl., tapping attach.
- 7' Reed Prentice pl., tapping att., (2).  
 7' Warren semi-universal.  
 36" Dreses plain, tapping attach.  
 26" Sibley sliding hd., back grd., (4).

## GRINDERS

- 14"x96" Norton plain, NEW.  
 Brown & Sharpe, planer type.  
 No. 1 Norton univ. tool-cutter, (2).
- No. 5 Brown & Sharpe universal.  
 No. 4 Besly disc grinder.  
 No. 3 Garvin univ. cutter-surface.

## MISCELLANEOUS

- Double end punching and shearing mch., Niles-Bement-Pond, 14" cap.  
 96"-84" Gould-E. gear hobbors.  
 No. 2-A Warner-Swasey turret lathe.  
 32" Cincinnati high duty shapers, NEW, (9).  
 15" Hendey shaper.  
 16" Cincinnati heavy duty shaper.
- 30-Ton 8-wheel Orton-Steinbrenner steam operated standard gauge locomotive crane, 52' boom.  
 20" Gould & Eberhardt b. g. shaper.  
 24" Hendey friction driven shaper.  
 24" Flather heavy duty shaper.  
 36" Fellows gear shapers, (2).  
 10" Bement slotting machines, (2).

# Simmons Machine Co., Inc.

Albany, N. Y.

801 Singer Bldg., N. Y., 86-88 Exchange St., Buffalo, N. Y.

# OUR GUARANTY MONEY BACK IF NOT SATISFIED

## Drills—Radial

- |   |  |
|---|--|
| 1—6 sp. Foote-B., rail. No. 6 m. taper. | 2—25" Weigle Drills, s. h., b. g., p. f. |
| 1—5" Universal Radial.                  | 6—20" Weigle w. & l. feed Drills.        |
| 1—4" Universal Radial.                  | 4—Hoefler Drills, 21", 24", 26", 28".    |
| 1—4" Lodge & Davis Plain.               |  |

## Grinders

- |                                |                                |
|--------------------------------|--------------------------------|
| 2—10x36" Thompson Full Univ.   | 1—No. JA Yankee Drill Grinder. |
| 1—No. 2 Manhattan Surface.     | 1—Used No. 3 Woods Cutter.     |
| 1—Grand Rapids Drill, 24" cap. | 3—No. 60 Heald Cylinder.       |
| 3—No. 2 Oakley Univ. C. & T.   |                                |

## Shapers

- |                               |                                      |
|-------------------------------|--------------------------------------|
| 2—16" Streine B. G. (new).    | 1—Each 16, 18, 21, 24" Hollingsworth |
| 4—16" Whipp S. G. Crank.      | B. G. Crank (new).                   |
| 1—20" Whipp B. G. Crank.      | 1—22" Lodge & Davis, Triple Grd.     |
| 1—20" Ohio B. G. Crank (new). |                                      |

## Millers

- |                                       |                                    |
|---------------------------------------|------------------------------------|
| 5—Rockford, all univ., Nos. 1½-2½,    | 10—No. 32 Kemp Smith Lincoln Type. |
| 3-st. cone, d. b. g., sgl. pulley dr. | 2—No. 1½ American Plain.           |
| 1—No. 2 American Plain (used).        | 1—No. 1½ American Universal.       |
| 2—No. 1 U. S. Hand Millers.           |                                    |

## Presses and Punches

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| 1—No. 2 Pratt & Whitney Trimming.    | 1—Doty Combined Punch & Shear,     |
| 6—Willard Presses, 2, 3, 4, 5-A Inc. | grd.; cap about 4x4", with 7" tht. |

## Gisholt Turret Lathes

- 19—24", with 2½", 4½" and 6½" h. s., chucking equip., qck. ret., rapid traverse.

## Hand Screw Machines

- 14—No. 2 Smith, rd. collet, 1-1/16"; wire fd., auto. chuck, ind. stops to turret.

## Baush Multiple Spindle Drills

- 1—Baush Multiple, arranged for 24 spindles; now with 12 spindles; takes 60" bet. columns; drills in any circle 12-48" dia.; approximate weight 30,000 lbs.  
1—No. 1 Baush High Speed Multiple Spindle, rectangular head 16x20"; arranged for 16 spindles; now with 10½" spindles; No. 2 M. T.; cone drive.  
1—Baush Multiple, arranged and equipped with 16 spindles, No. 1 M. T.

## Lathes

- 4—Ideal Precision Lathes, 7" swing, comp. slide, grinding attachment.  
3—Ames Precision Lathes, 8" swing, compound slide.  
2—12 & 14"x 6' Worcester Tool Room, taper attachment, pan and collet.  
1—14"x6" Flather Engine Lathe, screw cutting, s. b. g.  
1—Used Blaisdell 22"x10' b. g. Engine Lathe.  
1—Each Sidney Heavy Duty Lathes, 15, 17, 19, 23 and 27" by 6, 8, 10, 12 and 14' beds, d. b. g., 3-step cone, q. c. g.  
1—Each Sidney Medium Pattern Lathes, 14, 16, 18 and 20" by 6, 8 and 10' beds, d. b. g., 3-step cone, q. c. g.  
1—25"x8" Economy Heavy Duty Single Purpose Lathe, d. b. g., 3-step cone, c. r., hollow spindle, quick change feed.  
1—12"x 6' Reed.  
1—17"x 8' National, c. r., h. s.

1—17"x 8' Putnam.

## Planers

- |                              |                                  |
|------------------------------|----------------------------------|
| 1—26"x24"x 8' Pond, 2 heads. | 1—40"x40"x10' New Haven, 1 head. |
| 1—32"x32"x10' Fitchburg.     |                                  |

## Miscellaneous

- |   |                                    |
|---|------------------------------------|
| Car wheel borer and facer, 50" Sellers. | Punch, 5' mult., Bertsch, 6" gap.  |
| Gear cutter, 26" Brown & S. No. 3.      | Shear, square, 12' Bertsch, 14 ga. |
| Hammer, 40 lb. Bradley, cush. h.        | Shear, No. 6 Quickwork rotary, 48" |
| Hammer, 250 lb. Little Giant, pwr.      | throat, 1" capacity.               |

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**WAYNE MACHINERY CO.** FT. WAYNE, IND.

Branches: — 18 W. Second St., Dayton, Ohio  
121 So. Third St., Louisville, Ky.

# Priced To Sell Now

## BORING MILLS

- |   |  |
|---|--|
| 100" Betts, 3 heads, like new.                    | 48" Colburn, 2 heads, modern.          |
| 76" Betts heavy, modern.                          | 36" Bullard Vertical Turret.           |
| 60" Niles-Bement-Pond, hvy., single pulley drive. | 8-24" Bullard Vertical Turret.         |
| 60" Bickford, standard, 2 heads, low price.       | 34" Horizontal Universal, belt driven. |
|   | 4" Espen-Lucas Horiz., floor type.     |
|   | 3" Betts, Horizontal, knee type.       |

## DRILLING MACHINES

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 8" Niles Plain Radial.              | 5" Niles-Bement-Pond, motor driven. |
| 8" Baush, Plain Radial, like new.   | 4" Gang, gear box drive.            |
| 6" Bickford, Semi-Universal Radial. |                                     |

## DRILLS—Multi-Spindle

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| 10 spindle Baush, 1 1/2" capacity. | 2-sp. Foote-Burt heavy rail type.   |
| 6 spindle Baush, 1" capacity.      | 4 & 6 spindle Rockford, auto. feed. |
| 3 & 4 spindle Barnes, 20" gang.    | 4 & 6 spindle Allen, sensitive.     |

## LATHES

- |  |                            |
|--|----------------------------|
| 60"x20" Fifield, D. C. Motor Drive.            | 28"x18" Johnson.           |
| 52"x22" New Haven triple geared, pulley drive. | 20"x8" & 10" American.     |
| 60"x17" New Haven Pulley.                      | 20"x8" Lodge & Shipley.    |
| 36"x14" Putnam triple geared.                  | 14"x6" Mulliner tool room. |
| 36"x12" Pond triple geared.                    | 14"x6" Monarch.            |
| 30"x12" Johnson.                               | 12"x5" P. & W.             |
|  | 10"x4" Seneca Falls.       |

## MILLING MACHINES

- |  |                                 |
|--|---------------------------------|
| 8—No. 5C Becker Verticals, new, price right. | No. 23 Becker Plain.            |
| No. 3 LeBlond, plain, high duty.             | No. 2 Hendey Norton Plain.      |
| No. 5 Becker-Brinard Plain.                  | No. 14 Hendey Norton Universal. |
| No. 2 Kempsmith Universal.                   | No. 2 Van Norman Duplex.        |
| 50"x8" Ingersoll Slab.                       | 31"x5" Newton Vertical Slab.    |

## PLANERS

- |  |  |
|--|--|
| 84"x84"x13" Sellers, 3 heads, belt driven.   | 42"x42"x12" Pond Machine Tool Co., 2 heads, belt driven. |
| 48"x48"x14" Powell, 4 heads, reversible motor drive, complete with electrical equipment. | 36"x36"x12" Niles-Bement-Pond, 3 heads.                  |
| 48"x48"x16" Bement-Miles, 4 heads, belt driven.  | 30"x30"x10" Flather, 2 heads, belt driven.               |
|  | 30"x30"x6" Gray, 3 heads, parallel dr.                   |

## PRESSES

- |                               |  |
|-------------------------------|--|
| No. 55 Adriance S. A.         | No. 1 Farrel straight side, 8" stroke. |
| No. 512 Bliss, triple action. | D. D. 4 Ferracute, D. A., roll feed.   |

## SHAPERS

- |  |                                     |
|--|-------------------------------------|
| 2-16" Newark, box table and vise.        | 4-15" Hendey, box table and vise.   |
| 4-18" Smith & Mills, box table and vise. | 3-48" Morton, extra hvy., draw-cut. |
|  | 18" Fitchburg, traveling head.      |

## MISCELLANEOUS

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 10" Bement Boiler Plate Rolls. | Sellers heavy Punch, 2" capacity.    |
| 18" Betts heavy type slotter.  | No. 26 Buffalo Slitting Shear (new). |
| 8" New Haven Slotter.          | Newbold Rotary Shear, 4" cap.        |

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- 1—Weigel 21" Sliding Head Drill, belt driven.
- 1—Dauber-Kratsch 20" Upright Drill.
- 1—Dauber-Kratsch 3' High Speed Radial.

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- 2—Rockford 9"x12" Geared Head Manufacturing Lathes.
- 1—Rockford 16"x6' Cone Head High Power Manufacturing Lathe.
- 3—Rockford 16"x6' Tool Room Lathes.

### HAMMER

- 1—Beaudry No. 7, 200 lb. Champion Type, belt driven.

### SAWS

- 1—Peerless 6"x6" Hack Saw.
- 1—Racine No. 1 Hack Saw.

### GRINDERS

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- 1—Norton No. 2 Universal Tool and Cutter Grinder.
- 1—Gardner No. 4 Disc Grinder.
- 1—Gardner No. 14 Disc Grinder.
- 1—Ott 10"x32" Universal Grinder.
- 1—Taylor & Fenn Bore Grinder.
- 1—Sterling Universal Tool and Cutter Grinder.
- 1—Taylor & Fenn 20" Wet Tool Grinder.
- 2—Gardner No. 3 Polishing Lathes.
- 1—Fitchburg 4x20 Grinder.

### MILLING MACHINES

- 3—Taylor & Fenn Vertical Milling Machines.
- 1—Craftsman No. 2 Castellating.

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### FOOT PRESS

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34" x 60" Lo-Swing.  
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8" x 84" Lo-Swing.  
8" x 84" Lo-Swing.  
8" x 108" LO-SWING.  
14x6 Reed Prentice, h. d.  
16x7 Oliver Tool Room, q. c. g.  
16x8 Gisholt turret.  
17x6 LeBlond, q. c. g., h. d.  
18" Libby 6-hole turret.  
18x8 Oliver tool room.  
20x8 Cisco, q. c. g.  
20x8 Hamilton, s. q. c. g.  
20x11 Cisco, q. c. g.  
24x12 CISCO, q. c. g.  
24x12 Gisholt turret.  
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42" Niles car wheel.  
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50x20' FIFIELD, TRIPLE GRD.

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20" Walcott b. g.  
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20" STEPTOE, B. G.  
24" Lodge & Davis b. g.  
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6 spindle Barnes gang.  
6 spindle Allen, b. b., h. s.  
10 spindle Natco multi., 1/2" cap.  
12 spindle P. & W. mult., 1/2" cap.  
27 spindle Baush mult., 1/2" cap.  
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No. 18 Bliss, o. b. i.  
No. 19 Bliss, o. b. i.  
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No. 68-C 2 Bliss, double acting.  
No. 68 W. Bliss, double acting.  
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No. 2 Davis Keyseater.  
24" Bullard Boring Mill.  
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52" Baush Boring Mill.  
30" ROGERS & HEMPHIL BORING MILL.

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## NEW

- 1—26x12' 6" Quick Change Geared Head Oliver Lathe.
  - 1—18x10' Quick Change, Double Back Geared Oliver Engine Lathe.
  - 1—18x 8' Quick Change, Double Back Geared Oliver Engine Lathe.
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  - 1—No. 2-B Open Type H. S. 4-Spindle Drill Press.
  - 1—No. 2-B Open Type H. S. 2-Spindle Drill Press.
  - 1—No. 1 Cleveland Miller.
  - 1—15" Potter & Johnston Shaper.
  - 1—Wade-American Bench Lathe.
  - 1—No. 4 Starke Bench Lathe.
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- 2—Bridgeford Axle Turning Lathes.
- Wickes Bros. 20"x18' d. b. g., q. c. g. Lathe.
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- Yates No. 275 Grinders, 36" and 48"; No. 2 Am. Surface.
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- 30—Fox No. 3½ and Bristol No. 0 Milling Machines.
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- Hurlbut-Rogers 4" and Davis 6" Cutting-off Machines.
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- 1 slightly used 48"x16" L. & S. selective triple grd. hd., 25 h. p. motor.
- 1 slightly used 42"x26" American selective triple grd. hd., motor dr.
- 4 slightly used 36"x14" L. & S. selective triple grd. head, for motor dr.
- 1 slightly used 23"x10" LeBlond heavy duty, taper attachment.
- 1 slightly used 20"x10" Graves-Klusman, 3-step cone, belt drive.
- 3 new 14"x6" Monarch, 3-step cone, quick change, double back geared.
- 5 new 12"x5" Worcester, 3-step cone, belt drive.
- 2 new 14"x6" Flather, 3-step cone, belt drive.

## GRINDERS

- 2—12x72 Norton plain.
- 1—10x72 Norton plain.
- 1—No. 70 Heald internal.
- 2—No. 2 Brown & Sharpe universal.
- 1—No. 2 Morse universal.
- 3—No. 75 Heald.
- 1—No. 60 Heald.
- 1—12" No. 22 Heald rotary surface, with magnetic chuck.
- 1—14" P. & W. vert. surface, with quadruple magnetic revolving ck.
- 1—No. 6 Rivett internal grinder.
- 1—10x36 Norton plain.

## PLANERS AND SHAPERS

- 1—72x72x20' Pond, 2 rail heads.
- 1—56x56x16' G. A. Gray, 2 rail heads, 1 side head and 1 auxiliary side head, excellent condition.
- 1—42x42x12' Niles, 2 swivel heads on cross rail, spiral gear dr., arranged for motor dr., excellent condition.
- 1—36" Fellows gear shaper.
- 1—24" Smith & Mills shaper.
- 1—24" Ohio shaper.
- 1—20" Kelly shaper.
- 1—16" Gould & Eberhardt.
- 1—14" Smith & Mills shaper.

## BORING MILLS

- 3—New 61" Bullard maxi-mills, complete equipment, arr. motor dr.
- 5—New 54" Bullard maxi-mills, complete equipment, arr. motor dr.
- 3—New 36" Bullard New Era type, complete equip., arr. motor dr.
- 3—Used 54" King vert., 2 swivel hds., excellent condition, arr. motor dr.

## BORING MILLS—Continued

- 1—Used 42" King vert., 2 swivel hds., excellent condition, arr. motor dr.
- 1—Used 42" Colburn vert., 2 swi. hds., very good cond., arr. motor dr.
- 1—Slightly used 40" King vert., 2 swi. hds., excellent cond., for motor dr.
- 1—Used 36" Gisholt vert., 1 turret hd. on cross rail, 5-step cone, belt dr.
- 1—Used No. 33 Lucas horiz., single pulley drive, 44" bar, bed 2' longer than standard.
- 1—Used No. 0 Giddings & Lewis horizontal, latest type.

## PRESSES

- 1—Slightly used 59 Toledo.
- 1—Slightly used 59½ Toledo.

## MILLING MACHINES

- 2—Model C Becker vertical.
- 2—No. 2 Cincinnati vert., 3-st. cone.
- 1—No. 2 Cincinnati vertical, single pulley drive, latest type.
- 1—No. 3 Kempsmith universal, 3-step cone, belt drive.
- 1—No. 2 Cincinnati pl., agl. pulley dr.
- 1—No. 35 Cin't uni., for motor dr.
- 1—No. 3H LeBlond universal.
- 1—No. 2N Potter & Johnston reversible table milling machine.
- 1—60" Newton vertical continuous.
- 2—No. 5C Becker vertical.
- 1—No. 14 Brown & Sharpe universal.

## AUTOMATICS AND TURRET LATHES

- 2—14" Gridley, 4 spindle.
- 3—No. 52 National Acme.
- 1—No. 53 National Acme.
- 1—24" Model A Cleveland Auto.
- 1—24" Cleveland Automatic.
- 1—48" Cleveland Automatic.
- 2—24" Steidle, 64" spindle.
- 4—No. 3A Warner & Swasey.
- 1—No. 2A Warner & Swasey, bar and chucking equip., excellent cond.
- 2—No. 4 Warner & Swasey.
- 1—No. 8 Bardons & Oliver.
- 1—No. 4 Bardons & Oliver.

## MISCELLANEOUS

- 2—12" Wm. Sellers Sloters, 5-step cone, belt drive.
- 1—D8 Colburn heavy duty Drill.
- 1—No. 216 Baker Drill.
- 1—No. 315 Baker Drill.
- 1—4" Hamilton Radial, motor driven.
- 2—No. 4 Williams & W. Bulldozers.
- 1—New 14" double spindle National Bolt Cutter.

**The Empire Machinery Exchange Co., Inc.**  
517-519 The Newman-Stern Bldg., CLEVELAND, OHIO

# FOR SALE GOOD AS NEW, READY FOR DELIVERY

48"x12' American Planer, 2 h. p. motor dr.....	\$ 3600.
30" Warner & Swasey Boring Mill.....	850.
No. 3 Ingersoll Vertical Miller, heavy.....	1250.
No. 4 Becker Horizontal Miller, plain, heavy ..	1300.
No. 4 Cincinnati Miller, plain.....	950.
No. 3 LeBlond Heavy Duty Miller, plain.....	950.
No. 2 Garvin Universal Miller .....	1000.
36"x14' Niles-Bement Lathe, quick change.	
21"x8' LeBlond Lathes, quick change.....	700.
3 1/4" Greenlee Turret Lathe, incl. cross slide...	850.
3" Jones & Lamson Turret Lathe.....	550.
No. 2 Warner & Swasey Hollow Hex. Turret.	850.
No. 14 Bealy Disc Grinder .....	350.

**CHAS. MOLITOR MACHINERY CO.**  
124 S. Clinton St., CHICAGO, ILL.

## FIRST-CLASS USED TOOLS

### VERTICAL BORING MILLS

24" Bullard.	8' Niles. (2).
36" Gisholt.	6' Cincinnati.
42" Bullard.	84" Betts.
60" Colburn, (2).	10' Niles.
61" Bullard.	

### HORIZONTAL BORING MILLS

No. 33 Lucas,	No. 2 Barrett, (3).
Cleveland, 2 1/2" bar, rotary table.	No. 6 Giddings & Lewis.

### DRILLING MACHINES

3 1/2" American.	4' Cincinnati Bickford.
3 1/2" Morris.	8' Fostick.
4" American, (3).	8' American, (2).

### PLANERS—OPEN SIDE

30x30x10 Cleveland.	60x60x14 Cleveland, widened
48x48x12 Cleveland.	to 72"

### PLANERS—STRAIGHT SIDE

30x30x10 Gray, 2 heads, (2).	48x42x10 Bickett, 4 heads.
36x36x12 Woodward & Powell,	56x56x16 Gray, 4 heads.
4 heads.	72x72x20 Cincinnati, 4 heads.

### MILLING MACHINES

Sizes from No. 1 to No. 5, both Plain and Universal.

### LATHES

Sizes from 16" to 60", both Cone Type and Geared Heads.

### SHAPERS

Sizes from 20" to 28".

**R. M. WEBB MACHINERY CO.,** 405 Hippodrome Bldg.,  
CLEVELAND, OHIO

**We Are  
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**Good Up-To-Date  
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What have you to offer?

We buy one machine,  
or entire plants.

**Vonnegut Machinery Co.**

19 W. South St.,

Indianapolis, Ind.

# NEW YORK'S GREATEST STOCK

## Vertical Boring Mills

120" Niles, 2 swivel heads.  
 80" Niles-Bement-Pond, 2 swivel heads.  
 77" Niles, 2 swivel heads.  
 64" Poole, 2 swiv. hds., thread-cutting att.  
 42" Putnam car wheel borer, hub-facing attachment and crane.  
 36" Niles car wheel borer, with crane.  
 32" Rogers swivel turret head, universal jaws in table.

## Horizontal Boring Mills

Bement cylinder boring machine, 8" bar, 12" between facing arms.  
 Barrett No. 3 cylinder, 5" bar.  
 Barrett boring and facing machine, 31" bar, having auxiliary head.  
 Beaman & Smith No. 2 floor boring, drilling and milling machine, 4" bar.  
 Lucas "Precision" boring, drilling and milling machine, 31" bar, table 48" x 30".  
 Niles boring and drilling machine, 4" bar.  
 Betts boring and drilling machine, 5" bar.  
 Newark boring and drilling machine, 4" bar.  
 Bement boring and drilling machine, 3" bar.  
 Newark boring and drilling machine, 3" bar.  
 Bement boring and drilling machine, 3" bar.  
 Barnes boring and drilling machine, 3" bar.  
 Barnes drilling and tapping, 3 3/16" bar.  
 Underwood type, 41" bar, floor plate 8' x 9'.

## Punches and Shears

No. 2 Bremser, dbl. end, 6" throats, punch 4' x 3", shear 4' x 3", 1" rounds.  
 Farrell, 9" throat, punch 1' in 3", shear 8' x 1" flat, 1" round.  
 Standard combined punch and shear, 40" throat, cut 4' x 4", direct acting.  
 Pels beam shear, cap 15" I-beams.  
 Lenoir rotary, 33" throat, 4" cam, belt dr.

## Automatic Gear Cutters

72" x 14" Gould & Eberhardt spur.  
 60" x 16" Gould & Eberhardt spur.  
 42" x 8" Brown & Sharpe spur.  
 Three 28" x 8" Brown & Sharpe spur.  
 24" x 10" Gould & Eberhardt spur.  
 Two 36" Fellows Gear Shapers.

## Pipe Machines and Bolt Cutters

Oster, 1" to 6" belt drive.  
 Jarecki, 1 1/2" to 6" belt drive.  
 Putnam bolt cutter, 1" to 2", belt.

## Lathes

Pit lathe, 21" swing, for facing, turning, boring and slotting large flywheels, pulleys and heavy shop work, triple geared internal face-plate drive, all power feeds.  
 No. 3 Niles-Bement-Pond, dbl. axle lathe.  
 62" Pulley turning and boring lathe, to face work 32" wide, 2 compound rests, jawed face plate, triple geared.  
 60" x 30" Finfield triple-grd. face-plate drive, comp. r., 22" centers, 4 ind. chuck jaws.  
 38" x 18" Niles-B.-P., g. h., h. s., c. r., mtr. dr.  
 36" x 20" Putnam, dbl. bk. grd., semi-qk.-ch., face-plate dr., taper attach., comp. rest.  
 Three 30" x 12" Niles-B.-P., grd. hd., heavy duty qk. ch., taper attach., for motor dr.  
 26" x 24" Putnam screw cutting, semi-quick-change, 17 5/8" centers, hollow spindle.  
 Three 24" x 14" Prentice, grd. hd., h. s., c. r., taper attach., motor or single-pulley dr.  
 24" x 10" American hvy. duty, g. h., q. c. h. s.  
 20" x 8" American, h. s., c. r., taper attach.  
**TWO NEW 20" x 8" Walcott hvy. duty, dbl. grd., qk. ch., all regular equipment. \$750 Each.**  
 20" x 14" Flather, h. s., c. r., 126" bet centers.  
 20" x 12" Prentice, h. s., c. r., 98" bet centers.

## Radial Drills

6" Bickford univ., gear box, sgle.-pulley dr.  
 6" Bickford plain, cone drive.  
 6" Niles-Bement-Pond plain, tapping attachment, heavy duty, motor drive.  
 6" Fossdick plain, tapping attachment.  
 6" Fossdick univ., tapping att. gear box.  
 6" Niles universal.  
 4" Fossdick plain, tapping attach., gear box.  
 4" Gang plain, tapping attachment.  
 4" Mueller plain, tapping attach., gear box.

## Screw Machines

No. 2 Bardons & Oliver, hand, plain head, collets from 6" to 1", wire feed.  
 Pratt & Whitney hand, plain head, capacity automatic chuck, 1" Bargain.  
 Three 24" Gridley single-spindle automatics. Very cheap, but good.

## Planers

96" x 96" x 37" Hewes & Phillips, 4 heads and an auxiliary head.  
 14" Hillis & Jones plate planer, double tool holder.  
 72" x 70" x 14" Sellers, 3 heads, this planer also has widening blocks.  
 48" x 48" x 14" Patch heavy duty, 4 heads, motor drive, latest type.  
 36" x 36" x 20" Woodward-Powell, 2 heads.  
 36" x 36" x 12" Bickett, heavy duty, 2 heads, motor or belt drive.  
 36" x 36" x 12" Bickett, heavy duty, 1 head, motor or belt drive.  
 36" x 36" x 16" Detrick & Harvey open slide, 1 rail head, 1 side head.  
 16" x 16" x 6" Walter Bros., 1 head.  
 55" x 46" x 14" Lincoln, 4 hds., for stone work.  
 Two 28" Newton planer index centers.

## Presses

No. 44 Bliss geared dbl. crank, 30" x 20" No. 43-3 Bliss toggle drawing, 30" x 20" holder 8" stroke of plunger 12" will re-



TWO 25 Newton planer muck centers.  
 No. 14 Bliss geared dbl. crank. *See p. 27*  
 No. 24-A Bliss toggle drawing-stroke blank holder 8", stroke of plunger 12", will receive blank 20" dia., weight 16,200 lbs.  
 No. 135 Bliss double crank, 45" between uprights, stroke 6", 7,500 lbs.  
 TWO No. 666 Toledo knuckle joint, 24" str., 1,000 tons pressure, 80,000 lbs.  
 Three No. 604 Bliss rack-and-pinion reducing ad. str. 4" to 43", weight 12,500 lbs.  
 No. 857 Toledo rack and pinion reducing, adjustable stroke 5" to 49".  
 Two No. 856 Toledo rack and pinion reducing, adjustable stroke 5" to 38".  
 Seven No. 16 Bliss boring and wiring, 14" stroke, weight 1,250 lbs.  
 No. 19 Bliss inclinable, 14" stroke.  
 P-3 Ferracute, 14" stroke, weight 3,100 lbs.  
 D-5 Ferracute, grd., 3" str., wt. 8,700 lbs.  
 Seven V. & O. No. 104 double action stroke of slide 1", stroke of plunger 3".  
 No. 24 Mansfield double acting, stroke of slide 1", stroke of plunger 14".  
 Behrendt dbl. acting o. b., grd., stroke of slide 14", stroke of plunger 3".  
 Two 7" Geo. A. Ohl power brakes, stroke 24", capacity 4", weight 25,000 lbs.  
 No. 24 *Saws*  
 6"x6" Racine, high speed.  
 6"x6" Marvel, high speed, auto. stock feed.  
 No. 3 Ryerson friction, high speed, capacity 24" 1-beams, motor drive.

TEN NEW 15"x38" Robt. Larnon, d. f., 8, c., comp. rest, pan bed, all regular equipment, \$5000 Each. Can furnish taper attachment.  
 THREE NEW 16"x36" Cleveland, h. s. c., also turret for carriage. \$500 Each.  
 16"x38" Cisco dbl. grd., quick ch. hol. spdl.  
 Six 15"x38" Whitcomb-Blaisdell plain turning lathes, geared head, taper attachment.  
 Two 14"x37" Lodge Shipley, q. c., h. a., pan bed.

**Turret Lathes**  
 Six 3-A Warner & Swasey, 38" hole in spindle, geared head, single pulley drive.  
 No. 2 W. & S., pl. hd., 1" auto. chuck cap.  
 No. 5 Hardons & Oliver friction-grd.-hd., 2 5/16 auto. chuck cap., pwr. fd. to turret.  
 Foster, back geared, friction head, 3" hole in spindle, power feed to turret.  
 Four 3"x36" J. & L. sliding-hd. flat turrets, 2 with bar equip., 2 with chucking equip.  
 21" Gisholt, 3 9/16" hole in spindle, taper attachment, quick return, cone drive.  
 30" American, back geared, friction head, hexagon turret with power feed, 4-way tool post, cone drive. Big bargain.  
 48" Bridgeport, bk. grd., power feed, 25" 4-jawed chuck, cone dr. Another bargain.

**Multiple Drills**  
 14-spindle Baush, capacity 1".  
 20-spindle Fox, capacity 1 1/4" in 1".  
 16-spindle Fox, capacity 1 1/4" in 1".  
 14-spindle Fox, capacity 1 1/4" in 1".

**Also Upright and Sensitive Drills, Shapers, Slotters, Hammers and Miscellaneous Tools**  
 We are large cash buyers of machine and iron working tools. If you have any good usable machines for sale, advise us. We are prepared to buy entire shops or plants, but are also interested in individual machines.

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# DO YOU KNOW

**You Will Not Wait For Lower Prices  
When You See The Prices We Have On  
MODERN MACHINE TOOLS**

No. 31 Lucas Horizontal Boring Mill.  
42" Colburn Boring Mill.  
42" Bullard Boring Mill.  
72" Pond Boring Mill.  
350 Ton Wheel Press, Hydraulic.  
250 Ton Wheel Press, Hydraulic.  
No. 3 Cincinnati Miller.  
42"x42"x12' Ohio 3 head Planer, A-1 Condition, \$2500.  
30" Hilles & Jones Bending Rolls, motor drive; new.  
91-C Toledo Press, equal to new.  
52 Bliss Straight Side Press, like new, \$375.  
30" Flather Automatic Gear Cutter, 95% new.

**Partial List Only**

**Cincinnati-Bertolette Machine Tool Co.**

*Machine Tool Merchants*

530 Walnut St.,

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Long Distance, Main 5103

## Slightly Used Machines Fully Guaranteed

1-42" Gisholt Boring Mill.  
1-Modern Cutting - Off Machine (new).  
1-3' Bickford Radial Drill.  
1-25" Barnes back grd. Drill.  
2-24" Barnes vert. drill presses.  
1-20" 6-spdl. Barnes Gang Drill.  
6-Sigourney Plain Bearing Sensitive Drills.  
6-Pilton Plain Bearing Sensitive Drills.  
2-No. 2-D Colburn Drills.  
1-22" 4 sp. Barnes Gang Drill.  
1-No. 17 Foote-Burt Drill, 4 sp.  
1-Safety Emery Wheel Grinder, Planer Type.  
1-No. 12 Modern Grinder.  
2-No. 17 Besly Disc Grinders.  
1-14" Landis Internal Grinder.  
1-No. 1 Landis Plain Grinder.

1-12x36 Cincinnati Plain cylindrical Grinder, (new).  
1-No. 3 Brown & Sharpe Automatic Gear Cutter.  
1-6x32 Norton Grinder.  
1-3-sp. G. & E. Gear Rougher.  
1-36" Fellows Gear Shaper.  
1-9x14 Porter Cable Lathe.  
1-30x14 B. & E. Engine Lathe.  
4-No. 3-A W. & S. Turret Lathe.  
1-No. 3-A High Spd. Hammer.  
1-No. 5-A High Spd. Hammer.  
1-No. 1 Davis Keyseater.  
1-No. 2 M. & M. Keyseater.  
2-24" Gridley Auto., sgl. spdl.  
1-24" Gridley Auto., four spdl.  
Cleveland Automatics as follows:—1", 1 1/2", 2", 2 1/2", 3", 3 1/2".  
Nos. 52 and 56 National Acme Automatics.

**M. J. Walsh Machinery Co.**

141 Sycamore St., Milwaukee, Wis.

# Classified Finding Index

## Air Guns

Powell Co., Wm., Cincinnati

## Angle Plates

Boston Scale & Mch. Co., Roxbury, Mass.  
Fairbanks Company, The, New York  
Germanow-Simon Machine Wks., Rochester  
Held Brothers, Co., Inc., Beverly, Mass.  
Whiting & Comstock, Hartford, Conn.

## Arbors, Roller Grip

Alert Tool Co., Philadelphia

## Arbors, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.  
E. O. Partridge 2047 W. Lake St., Chicago

## Automatics

National Acme Company, Cleveland  
New Britain Machine Co., New Britain, Conn.

## Balancing Ways

Anderson Bros. Mfg. Co., Rockford, Ill.

## Ball Bearings

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

## Balls, Brass, Bronze and Steel

Abbott Ball Co., Hartford, Conn.  
Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

## Band Saw Machines, for Metal

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago

## Barrels, Tumbling

Abbott Ball Co., Hartford, Conn.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Belt Shifter

Kremer-Cummins Machine Co., Cleveland

## Bench Legs, Steel

New Britain Mch. Co., New Britain, Conn.

## Bending Machines, Hand and Power

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H. 417 E. 31st., N. Y.  
Laurie Mfg. Co., Springfield, Ill.  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Boring Bars

Alert Tool Co., Philadelphia  
Madison Mfg. Co., Muskegon, Mich.  
Pedrick Tool & Machine Co., Philadelphia  
Ready Tool Co., Bridgeport, Conn.  
Rigid Tool Holder Co., Washington, D. C.  
Underwood Corp., H. B., Philadelphia

## Boring Bars, Cylinder

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

## Boring, Drilling and Milling Machines, Horizontal

Barnes Co., W. F. & John, Rockford, Ill.  
Beaman & Smith Co., Providence, R. I.  
Carroll Fdry. & Mch. Tool Co., Bucyrus, Ohio  
Fawling & Harnischfeger Co., Milwaukee  
Simmons Machine Co., Albany, N. Y.

## Boring Machines, Horizontal

Avey Drilling Machine Co., Cincinnati  
Pedrick Tool & Machine Co., Philadelphia

## Boring and Turning Machines, Vertical

Simmons Machine Co., Albany, N. Y.  
Turner Machine Co., Danbury, Conn.

## Bowden Wire Mechanism

Gwilliam Co., The, 23 Flatbush Ave., Brooklyn, New York

## Broaches

Lagerholm Co., E., 9 S. Clinton St., Chicago  
Velco Mfg. Co., Inc., Greenfield, Mass.

## Brushing Machines

Simmons Machine Co., Albany, N. Y.

## Bushings, Brass and Bronze

Bunting Brass & Bronze Co., Toledo, Ohio

## Case Hardening Compound

Buchanan Chemical Co., C. G., Cincinnati

## Casters for Trucks

Hamilton Caster & Mfg. Co., Hamilton, Ohio

## Centers, Index

Abrasive Mch. Tool Co., E. Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Dickow Machinery Co., Fred C., 3504 W. Lake St., Chicago  
Whiting & Comstock, Hartford, Conn.

## Chains, Power Transmission

Cullman Wheel Co., 1944 Altgeld St., Chicago  
Whitney Mfg. Co., Hartford, Conn.

## Chasers

Modern Tool Co., Erie, Pa.  
National Acme Co., Cleveland

## Chucking Machines

New Britain Mch. Co., New Britain, Conn.

## Chucks, Air

Frontier Chuck & Tool Co., Buffalo, N. Y.

## Chucks, Centering

McCrosky Tool Corporation, Meadville, Pa.  
Thomas Elevator Co., 31 So. Hoyne Ave., Chicago

## Chucks, Draw-in and Thrust

Hardinge Bros., 1770 Bertess Ave., Chicago

## Chucks, Drill

Hartford Special Mch. Co., Hartford, Conn.  
Jacobs Mfg. Co., Hartford, Conn.  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago  
Weaver Mfg. Co., Springfield, Ill.

## Chucks, Drill and Tap

McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Peter Bros. Mfg. Co., Algonquin, Ill.  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Chucks, Keyway Cutting

Scully-Jones & Co., Ry. Exch. Bldg., Chicago

## Classified Finding Index

### Chucks, Lathe

Thomas Elevator Co., 31 S. Heyne Ave.  
Chicago

### Chucks, Magnetic

Heald Machine Co., Worcester, Mass.

### Chucks, Wrenchless

Thomas Elevator Co., 31 S. Heyne Ave.  
Chicago

### Clutches, Friction

Edgemont Machine Co., Dayton, Ohio  
Milwaukee Shaper Co., Milwaukee, Wis.

### Cold Saws

Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Fairbanks Company, The, New York  
Knowlton Machine Co., Westbrook, Me.  
Peter Bros. Mfg. Co., Algonquin, Ill.

### Collets, Lathe and Screw Machine

Hardinge Bros., 1770 Berneau Ave., Chicago  
Morrison Machine Products Co., Inc.,  
Rochester, N. Y.

### Couplings, Flexible

Cooper Flexible Transmission Co., Inc.,  
Brooklyn

### Cranes, Hand Power

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.  
Weaver Mfg. Co., Springfield, Ill.

### Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Canton Foundry & Mch. Co., Canton, Ohio  
Weaver Mfg. Co., Springfield, Ill.

### Cranes, Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Pawling & Harnischfeger Co., Milwaukee, Wis.

### Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Cutters, Adjustable

Fairbanks Company, The, New York  
McCroskey Tool Corporation, Meadville, Pa.  
Madison Mfg. Co., Muskegon, Mich.

### Cutters, Roll

Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

### Cutters, Keyseating

Lagerholm Co., E., 2 S. Clinton St., Chicago  
Scully-Jones & Co., Ry. Exch. Bldg., Chicago  
Whitney Mfg. Co., Hartford, Conn.

### Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.  
Clough, R. M., Meriden, Conn.  
Genease Mfg. Co., Rochester, N. Y.  
Lagerholm Co., E., 2 S. Clinton St., Chicago  
Mebach Tool & Machine Co., Houston  
Whitney Mfg. Co., Hartford, Conn.

### Cutting-Off Machines

Davis Machine Tool Co., Rochester, N. Y.  
Etna Mfg. Co., Toledo, Ohio  
Peter Bros. Mfg. Co., Algonquin, Ill.

### Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Brow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Cylinder or Dome Facing Machines

Underwood Corp., H. B., Philadelphia

### Die Heads, Self-Opening

Modern Tool Co., Erie, Pa.  
Murbey Machine & Tool Co., Detroit, Mich.  
National Acme Company, Cleveland

### Dicing Machines

Henry & Wright Mfg. Co., Hartford, Conn.

### Dies, Pipe Threading

Rignall & Keeler Mch. Wks., Edwardsville, Ill.  
Greenfield Tap & Die Corp., Greenfield, Mass.

### Dies, Screw and Thread Cutting

Greenfield Tap & Die Corp., Greenfield, Mass.  
Hardinge Brothers, 1770 Berneau Av., Chicago  
National Acme Company, Cleveland

### Dies, Self-Opening Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Murbey Mch. & Tool Co., Detroit, Mich.  
Rickert-Safer Co., Erie, Pa.  
Victor Tool Co., Inc., Waynesboro, Pa.

### Dogs, Machine

Ready Tool Co., Bridgeport, Conn.

### Drilling Heads for Square Holes

Fairbanks Company, The, New York

### Drilling Machine Heads

Harris Engineering Co., Bridgeport, Conn.  
Nelson-Blanch Mfg. Co., Detroit, Mich.  
Sellew Machine Tool Co., Pawtucket, R. I.  
United States Drill Head Co., Cincinnati  
United States Machine Tool Co., Cincinnati

### Drilling Machines, Bench

Avey Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Burke Machine Tool Co., Conneaut, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
High Speed Hammer Co., Rochester, N. Y.  
Reed Co., Francis, Worcester, Mass.  
Taylor & Fenn Co., Hartford, Conn.

### Drilling Machines, Horizontal

Pawling & Harnischfeger Co., Milwaukee, Wis.

### Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati  
Detroit Machine Tool Co., Detroit, Mich.  
Edlund Machinery Co., Inc., Cortland, N. Y.  
Henry & Wright Mfg. Co., Hartford, Conn.  
National Acme Company, Cleveland  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

### Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Silver Mfg. Co., Salem, Ohio

## Classified Finding Index

### Drilling Machines, Radial

Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Henry & Wright Mfg. Co., Hartford, Conn.  
Mueller Machine Tool Co., Cincinnati  
Pawling & Harnischfeger Co., Milwaukee, Wis.  
Silver Mfg. Co., Salem, Ohio  
Taylor & Fenn Co., Hartford, Conn.  
Sipp Machine Co., Paterson, N. J.

### Drilling Machines, Sensitive

Avery Drilling Machine Co., Cincinnati  
Burke Machine Tool Co., Cincinnati, Ohio  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Edlund Machinery Co., Inc., Cortland, N. Y.  
Hardinge Brothers, 1770 Berceau Av., Chicago  
Henry & Wright Mfg. Co., Hartford, Conn.  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.  
United States Machine Tool Co., Cincinnati  
Wisconsin Electric Co., Racine, Wis.

### Drilling, Milling and Boring Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Knight Machinery Co., W. B., St. Louis, Mo.

### Drilling Machines, Vertical

Aurora Tool Works, Aurora, Ind.  
Avery Drilling Machine Co., Cincinnati  
Barnes Co., W. F. & John, Rockford, Ill.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Davis Machine Tool Co., Rochester, N. Y.  
The Fairbanks Company, New York  
Henry & Wright Mfg. Co., Hartford, Conn.  
Hinckley Machine Works, Hinckley, Ill.  
Minster Machine Co., Minster, Ohio  
Silver Mfg. Co., Salem, Ohio  
Sipp Machine Co., Paterson, N. J.  
Taylor & Fenn Co., Hartford, Conn.

### Drilling and Tapping Attachments

Aurora Tool Works, Aurora, Ind.  
Harris Engineering Co., Bridgeport, Conn.  
Henry & Wright Mfg. Co., Hartford, Conn.  
McCroskey Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Reed Co., Francis, Worcester, Mass.  
Sipp Machine Co., Paterson, N. J.  
Turner Machine Co., Danbury, Conn.

### Drills, Center

Cogsdill Manufacturing Co., Detroit, Mich.

### Drills, Portable Pneumatic

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Keller Pneumatic Tool Co., Grand Haven,  
Mich.

### Drills, Portable Electric

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Standard Electric Tool Co., Cincinnati  
Stow Flexible Shaft Co., Philadelphia  
Wisconsin Electric Co., Racine, Wis.

### Dust Handling Equipment

Knickerbocker Co., Jackson, Mich.

### Emery Stands

Blount Co., J. G., Everett, Mass.  
Partridge, E. O., 2047 W. Lake St., Chicago

### Emery Wheel Dressers and Cutters

Cleveland Fine Cleaner Mfg. Co., Cleveland  
Precision Truing Mch. & Tool Co., Cinl.  
Taylor & Fenn Co., Hartford, Conn.

### Facing Heads, Automatic

Mummert-Dixon Co., Hanover, Pa.

### Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

### Filing Machines

Cochrane-Hy Co., Rochester, N. Y.  
Johnson & Biddle Tool Co., Elkhart, Ind.

### Filing and Sawing Machines

Johnson & Biddle Tool Co., Elkhart, Ind.

### Flexible Shafts

Stow Flexible Shaft Co., Philadelphia, Pa.  
Strand & Co., N. A., 649 Washington Blvd.,  
Chicago

### Forges

Canedy-Otto Mfg. Co., Chicago Heights, Ill.

### Forgings, Drop

Western Tool & Mfg. Co., Springfield, Ohio

### Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

### Furnaces

Bennett Co., W. B., Elmwood, Conn.  
Strong, Carlisle & Hammond Co., Cleveland

### Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.  
Western Tool & Mfg. Co., Springfield, Ohio

### Gauges, Amplifying, Snap and Plug

Alingo Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio

### Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.  
Way Co., A. F., Hartford, Conn.

### Gear Cutting Machines

Brown & Sharpe Mfg. Co., Providence, R. I.

### Gears

Merkle-Korff Gear Co., 313 S. Clinton St.,  
Chicago

### Grinding Machines, Bench

Blount Co., J. G., Everett, Mass.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Ransom Mfg. Co., Oshkosh, Wis.

### Grinding Machines, Cutter, Reamer and Tool

Barnes Co., W. F. & John, Rockford, Ill.  
Blount Co., J. G., Everett, Mass.  
Clough, R. M., Meriden, Conn.  
Grand Rapids Grinding Machine Co., Grand  
Rapids, Mich.  
Greenfield Machine Co., Greenfield, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.

Modern Tool Co., Erie, Pa.  
Mummert-Dixon Co., Hanover, Pa.  
National Acme Co., Cleveland  
Ransom Mfg. Co., Oshkosh, Wis.  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Cylinder

Heald Machine Co., Worcester, Mass.  
Whitney & Son, Baxter D., Winchendon, Mass.

### Grinding Machines, Cylindrical

Brown & Sharpe Mfg. Co., Providence, R. I.  
Detroit Machine Tool Co., Detroit, Mich.  
Greenfield Machine Co., Greenfield, Mass.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.  
Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Schmidt Co., B. L., Davenport, Iowa  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio

## Classified Finding Index

### Grinding Machines, Die

Abrasive Mchs. Tool Co., E. Providence, R. I.  
Manhattan Machine & Tool Works, Grand Rapids, Mich.

Modern Tool Co., Erie, Pa.  
Reed Bros. Co., Inc., Beverly, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Disc

Ransom Mfg. Co., Oshkosh, Wis.  
Sellew Machine Tool Co., Pawtucket, R. I.

### Grinding Machines, Drill

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

La Salle Tool Co., La Salle, Ill.  
Ransom Mfg. Co., Oshkosh, Wis.  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Face

Ransom Mfg. Co., Oshkosh, Wis.  
Taylor & Fenn Co., Hartford, Conn.  
Thompson Grinder Co., Springfield, Ohio

### Grinding Machines, Gage

Abrasive Mchs. Tool Co., E. Providence, R. I.

### Grinding Machines, Hob

Harris Engineering Co., Bridgeport, Conn.

### Grinding Machines, Internal

Reid Machine Co., Worcester, Mass.  
Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Taylor & Fenn Co., Hartford, Conn.  
Thompson Grinder Co., Springfield, Ohio  
Whitney & Son, Baxter D., Winchendon, Mass.  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Oilstone

Mummert-Dixon Co., Hanover, Pa.

### Grinding Machines, Portable

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago  
Mummert-Dixon Co., Hanover, Pa.  
Standard Electric Tool Co., Cincinnati  
Stow Flexible Shaft Co., Philadelphia  
Strand & Co., N. A., 549 Washington Blvd., Chicago  
Wisconsin Electric Co., Racine, Wis.

### Grinding Machines, Snapping

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.  
Manhattan Machine & Tool Works, Grand Rapids, Mich.

### Grinding Machines, Surface

Abrasive Mchs. Tool Co., E. Providence, R. I.  
Heald Machine Co., Worcester, Mass.  
La Salle Tool Co., La Salle, Ill.  
Ransom Mfg. Co., Oshkosh, Wis.  
Reid Brothers Co., Inc., Beverly, Mass.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Machines, Tap

Grand Rapids Grinding Machine Co., Grand Rapids, Mich.

### Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.  
Grand Rapids Grinding Machine Co., Grand Rapids, Mich.  
Greenfield Machine Co., Greenfield, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Modern Tool Co., Erie, Pa.  
Ott Grinder Co., Indianapolis, Ind.  
Simmons Machine Co., Albany, N. Y.  
Thompson Grinder Co., Springfield, Ohio  
Wilmarth & Morman Co., Grand Rapids, Mich.

### Grinding Wheel Dressers

Miller & Sons, Otto A., Detroit, Mich.

### Hack Saw Machines

Armstrong-Blum Mfg. Co., 241 N. Francisco Av., Chicago  
Western Tool & Mfg. Co., Springfield, Ohio

### Hammers, Belt & Motor Driven

Heaudry & Co., Boston  
United Hammer Co., Boston

### Hammers, Power

Nazel Engineering & Mch. Wks., Philadelphia

### Hammers, Riveting

High Speed Hammer Co., Rochester, N. Y.  
Quickwork Co., St. Marys, Ohio

### Heads, Dividing

Dickow Machinery Co., Fred C., 2504 W. Lake St., Chicago  
Simmons Machine Co., Albany, N. Y.  
Willard-Middletown Machine Co., Cincinnati

### Heads, Index

Dickow, Fred C., 2504 W. Lake St., Chgo.

### Hobs

Lagerholm Co., E., 9 S. Clinton St., Chicago

### Hoists, Air

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago  
Northern Engineering Works, Detroit, Mich.

### Hoists, Electric

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Thomas Elevator Co., 31 S. Hoyne Ave., Chicago  
Weaver Mfg. Co., Springfield, Ill.

### Hoists, Electric Traveling

Euclid Crane & Hoist Co., Euclid, Ohio  
Northern Engineering Works, Detroit, Mich.  
Fawling & Harnischfeger Co., Milwaukee, Wis.

### Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

### Holders and Counterbores

Manufacturers Machine Products Co., Detroit, Mich.

### Jigs, Fixtures, Tools, Etc.

Aings Tool, Die and Machine Works, Geo. H., Springfield, Ohio  
Hartford Special Mch. Co., Hartford, Conn.  
Hinckley Machine Works, Hinckley, Ill.  
Putter Tool & Machine Works, S. A., 79 E. 180th St., New York  
Way Co., A. F., Hartford, Conn.  
Whiting & Comstock, Hartford, Conn.

### Joints, Universal

Ainslie Mchs. & Tool Works, Hartford, Conn.  
Cooper Flexible Transmission Co., Inc., Hrusklyn

### Keyseating Machines

Bucher-Smith Co., East Liverpool, Ohio  
Chattanooga Mch. Co., Chattanooga, Tenn.  
Davis Machine Tool Co., Rochester, N. Y.  
National Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Lathe Accessories and Attachments

Hardinge Bros., 1770 Bertou Ave., Chicago  
McCrosky Tool Corporation, Meadville, Pa.  
Modern Tool Co., Erie, Pa.  
Sidney Tool Co., Sidney, Ohio  
Simmons Machine Co., Albany, N. Y.

### Lathes, Automatic

National Acme Company, Cleveland

## Classified Finding Index

### Lathes, Bench

Blount Co., J. G., Everett, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
Hardinge Bros., 1770 Berseau Ave., Chicago  
Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York

### Lathes, Engine

Barnes Co., W. F. & John, Rockford, Ill.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Davis Machine Tool Co., Rochester, N. Y.  
Hardinge Bros., 1770 Berseau Ave., Chicago  
Lehmann Machine Co., St. Louis, Mo.  
Monarch Machine Tool Co., Sidney, Ohio  
Mueller Machine Tool Co., Cincinnati  
Sidney Tool Co., Sidney, Ohio  
Willard Machine Tool Co., Cincinnati

### Lathes, Foot Power

Barnes Co., W. F. & John, Rockford, Ill.

### Lathes, Horizontal Turret

Davis Machine Tool Co., Rochester, N. Y.  
Steinle Turret Machine Co., Madison, Wis.

### Lathes, Short Cut

Sidney Tool Co., Sidney, Ohio

### Lathes, Speed and Hand

Blount Co., J. G., Everett, Mass.  
Greenfield Tap & Die Corp., Greenfield, Mass.

### Lockers, Shelving and Cupboards, Steel

Torrill's Equipment Co., Grand Rapids, Mich.

### Mandrels, Expanding

Alert Tool Co., Philadelphia  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Western Tool & Mfg. Co., Springfield, Ohio

### Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

### Measuring Devices

Van Keuren Co., The, Boston

### Metal Cutting Machines, Sheet

Quickwork Co., St. Marys, Ohio  
Savage Co., W. J., Knoxville, Tenn.  
Way Co., A. F., Hartford, Conn.

### Microgages

Van Keuren Co., The, Boston

### Milling Attachments

Ainge Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Hinckley Machine Works, Hinckley, Ill.  
Knight Machinery Co., W. B., St. Louis, Mo.  
Porter-Cable Machine Co., Syracuse, N. Y.  
Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York  
Whiting & Constock, Hartford, Conn.  
Willard-Middletown Machine Co., Cincinnati

### Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Hardinge Brothers, 1770 Berseau Ave., Chicago  
Simmons Machine Co., Albany, N. Y.

### Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio  
Carter & Hakes Mch. Co., W. Winsted, Conn.  
Hardinge Bros., 1770 Berseau Ave., Chicago  
United States Machine Tool Co., Cincinnati  
Whitney Mfg. Co., Hartford, Conn.

### Milling Machines, Horizontal

Beaman & Smith Co., Providence, R. I.

### Milling Machines, Plain

American Milling Machine Co., Cincinnati  
Beaman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Berseau Ave., Chicago

### Milling Machines, Portable

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Milling Machines, Universal

American Milling Machine Co., Cincinnati  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Cochrane-Bly Co., Rochester, N. Y.

### Milling Machines, Vertical

Beaman & Smith Co., Providence, R. I.  
Brown & Sharpe Mfg. Co., Providence, R. I.  
Burke Machine Tool Co., Conneaut, Ohio  
Clough, R. M., Meriden, Conn.  
Cochrane-Bly Co., Rochester, N. Y.  
Hardinge Bros., 1770 Berseau Ave., Chicago  
Knight Machinery Co., W. B., St. Louis, Mo.  
Taylor & Fenn Co., Hartford, Conn.

### Mills, Adjustable Hollow

Genesee Mfg. Co., Rochester, N. Y.

### Motors, Electric

Reliance Electric & Eng. Co., Cleveland  
Wisconsin Electric Co., Racine, Wis.

### Nut Facing Machines

Victor Tool Co., Inc., Waynesboro, Pa.

### Oil Cups

Gita Bros. Mfg. Co., 1940 S. Kilbourn Ave.,  
Chicago  
Tucker, W. C. & F. C., Hartford, Conn.

### Oil Extractors

Curtis, Estate of Albert B., Worcester, Mass.

### Oil Hole Covers

Tucker, W. C. & F. C., Hartford, Conn.

### Pattern Shop Machinery

Cochrane-Bly Co., Rochester, N. Y.  
Silver Mfg. Co., Salem, Ohio  
Towsley Mfg. Co., John T., Cincinnati

### Pipe Bending Machines

American Pipe Bending Machine Co., Boston  
Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Pipe Cutting and Threading Machines

Signal & Keeler Mch. Wks., Edwardsville, Ill.  
Simmons Machine Co., Albany, N. Y.

### Piston and Piston Ring Machines

National Acme Company, Cleveland.

### Planer Attachment, Radius

Underwood Corp., H. B., Philadelphia

### Planer Attachment, Slotting

Moore Co., H. A., Rochester, N. Y.

### Planer Tools, Circular

Underwood Corp., H. B., Philadelphia

### Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Planing Machines, Metal

Fairbanks Co., The, New York

### Pneumatic Tools

Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago  
Keller Pneumatic Tool Co., Grand Haven,  
Mich.

## Classified Finding Index

### Polishing and Buffing Machines

Blount Co., J. G., Everett, Mass.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
New Britain Machine Co., New Britain, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago  
Stow Flexible Shaft Co., Philadelphia  
Wilmarth & McMan Co., Grand Rapids, Wis.  
Wisconsin Electric Co., Racine, Wis. [Mich.]

### Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Canedy-Otto Mfg. Co., Chicago Heights, Ill.  
Lourie Mfg. Co., Springfield, Ill.  
Nicholson & Co., W. H., Wilkes-Barre, Pa.  
Weaver Mfg. Co., Springfield, Ill.

### Presses, Broaching

Atlas Press Co., Kalamazoo, Mich.  
Bartlett, Edwin E., Nashua, N. H.  
Lourie Mfg. Co., Springfield, Ill.

### Presses, Foot

Atlas Press Co., Kalamazoo, Mich.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lourie Mfg. Co., Springfield, Ill.  
Rockford Iron Works, Rockford, Ill.  
Taylor & Fenn Co., Hartford, Conn.  
Partridge, E. O., 2047 W. Lake St., Chicago

### Presses, Power

Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite-Jordan T. & M. Co., Elkhart, Ind.  
Rockford Iron Works, Rockford, Ill.  
Willard-Middletown Machine Co., Cincinnati

### Presses, Punch

Enterprise Machinery Co., 32 S. Clinton St.,  
Henry & Wright Mfg. Co., Hartford, Conn.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H., 417 E. 31st, N. Y.  
Lewthwaite-Jordan T. & M. Co., Elkhart, Ind.  
Lourie Mfg. Co., Springfield, Ill.  
Partridge E. O., 2047 W. Lake St., Chicago  
Rockford Iron Works, Rockford, Ill.

### Presses, Screw

Atlas Press Co., Kalamazoo, Mich.  
Lourie Mfg. Co., Springfield, Ill.  
Manhattan Machine & Tool Works, Grand  
Rapids, Mich.  
Pietz & Sons, Carl, Cincinnati  
Towles Mfg. Co., John T., Cincinnati  
Weaver Mfg. Co., Springfield, Ill.

### Pulley Machinery

Avey Drilling Machine Co., Cincinnati

### Pulleys, Iron, Solid and Split

Enterprise Machinery Co., 32 S. Clinton St.,  
Chicago  
Pyott Fdry. Co., 328 N. Sangamon St. Chicago

### Pumps, Lubricating

Michigan Machine Co., Detroit, Mich.

### Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

### Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago

### Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Mch. Co., T. H., 417 E. 31st St.,  
New York  
Whitney Metal Tool Co., Rockford, Ill.

### Punches, Power

Clough, R. M., Meriden, Conn.  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

### Punches and Dies

Ainge Tool, Die and Machine Works, Geo. H.,  
Springfield, Ohio  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H., 417 E. 31st St.,  
Rockford Iron Works, Rockford, Ill. [N. Y.]

### Quenching Bath

Bennett Metal Treating Co., Elmwood, Conn.

### Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.  
Yohe Supply Co., Wm. S., Canton, Ohio

### Reamer Holder, Floating

Victor Tool Co., Inc., Waynesboro, Pa.

### Reamers, Adjustable

Cashman Tool Co., Waynesboro, Pa.  
Clough, R. M., Meriden, Conn.  
Greenfield Tap & Die Corp., Greenfield, Mass.  
McCroskey Tool Corporation, Meadville, Pa.

### Reamers, Cylinder

Hinchley Machine Works, Hinchley, Ill.  
McCroskey Tool Corporation, Meadville, Pa.

### Reamers, Solid

Clough, R. M., Meriden, Conn.  
Cogswell Manufacturing Co., Detroit, Mich.  
Lagerholm Co., E., 9 S. Clinton St., Chicago  
McCroskey Tool Corporation, Meadville, Pa.  
Ready Tool Co., Bridgeport, Conn.

### Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati

### Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.  
High Speed Hammer Co., Rochester, N. Y.  
Independent Pneumatic Tool Co., 600 W.  
Jackson Blvd., Chicago

### Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco  
Ave., Chicago  
Hendley & Whittemore Co., Beloit, Wis.  
Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
Lewthwaite Mch. Co., T. H., 417 E. 31st, N. Y.  
Tucker, W. C. & F. C., Hartford, Conn.

### Roller Bearings

Gwilliam Co., The, 25 Flatbush Ave., Brooklyn,  
New York

### Scraping Machines, Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

### Screw Driving Machines, Automatic

Reynolds Machine Co., Mansfield, Ohio

### Screw Machines, Automatic

Brown & Sharpe Mfg. Co., Providence, R. I.  
National Acme Company, Cleveland  
New Britain Mch. Co., New Britain, Conn.

### Screw Machines, Auxiliary

National Acme Company, Cleveland

### Screw Machines, Plain or Hand

Potter Tool & Machine Works, S. A.,  
79 E. 130th St., New York

### Screws, Cap and Set

National Acme Company, Cleveland

### Second-Hand Machinery Dealers

Bath & Co., Cyril J., Cleveland  
Bertolette Mch. Tool Co., Jersey City, N. J.  
Brown-McDonald Mch. Co., St. Louis, Mo.  
Brownell Machinery Co., Providence, R. I.  
Cincinnati-Bertolette Machine Tool Co.,  
Cincinnati  
Dale Machinery Co., Inc., 541 Washington  
Bldg., Chicago  
Enterprise Machinery Co., 32 S. Clinton St.,  
Chicago



# Classified Finding Index

## Second-Hand Mch. Dealers—Cont'd

Empire Machinery Exchange, Cleveland  
 Kasey Machinery Co., E. L., 656 Washington  
 Blvd., Chicago  
 Federal Mch. Sales Co., 12 N. Jefferson St.  
 Chicago  
 Fitzgerald & Co., W. H. J., Boston, Mass.  
 Graves Mch. Exc. 80 Church St., New York  
 Harris Bros. Co., W. 36th & Iron, Chicago  
 Hill, Clarke & Co., 625 Wash't'n Bl., Chicago  
 Heas-Schenck Company, Cleveland  
 Johnson & Sons Machinery, Co., Wm. G.  
 St. Louis, Mo.  
 Jones Machine Tool Co., Cincinnati  
 Kemp Machinery Co., Baltimore, Md.  
 Lucas & Son, Inc., J. L., Bridgeport, Conn.  
 Lynd-Farguhar Co., Boston, Mass.  
 McCabe Lathes & Machinery Corp., J. J.,  
 149 Broadway, New York  
 McDonald Machinery Co., St. Louis  
 McMullen Mch. Co., Grand Rapids, Mich.  
 Machine Tool Engineering Co., Inc.,  
 149 Broadway, New York  
 Marshall & Huschart Machinery Co., 17 S.  
 Jefferson St., Chicago  
 Molitor Mch. Co., Chas., 215 E. Clinton St.,  
 Chicago  
 Motch & Merryweather Mch. Co., Cleveland  
 New York Machinery Exchange, 50 Church  
 St., New York  
 Niles-Bement-Pond Co., 111 Broadway, N. Y.  
 Norton-Broadway Mch. Co., Cincinnati  
 O'Brien Machinery Co., Philadelphia  
 Osborne & Sexton Mch. Co., Columbus, O.  
 Oviatt & Co., D. C., Cleveland  
 Parker Co., Frank H., 911 First National  
 Bank Bldg., Chicago  
 Peninsular Machinery Co., Detroit, Mich.  
 Prentiss & Co., Henry, Singer Bldg., N. Y.  
 Reliance Machinery Sales Co., Pittsburgh  
 Romaine Mch. Co., W. L., Milwaukee, Wis.  
 Russell Machine Co., Pittsburgh, Pa.  
 Simmons Machine Co., Albany, N. Y.  
 Stocker-Rumely-Wachs Co., 117 N. Jefferson  
 St., Chicago  
 Strong, Carlisle & Hammond Co., Cleveland  
 Syracuse Supply Co., Syracuse, N. Y.  
 Thomas, Inc., Frank, Philadelphia  
 Taylor, Velick & Co., 631 W. Lake St., Chicago  
 Vonnegut Machinery Co., Indianapolis, Ind.  
 Walsh Machinery Co., M. J., Milwaukee, Wis.  
 Warner, H. D., Hartford, Conn.  
 Wayne Mch. Co., Fort Wayne, Ind.  
 Webb Machinery Co., R. M., Cleveland  
 Winterer, Herman L., Philadelphia  
 White Mch. Co., A. D., 108 N. Jefferson  
 St., Chicago  
 Wright, David A., 566 Washington Blvd.,  
 Chicago

## Shafts, Flexible

Stow Flexible Shaft Co., Philadelphia

## Shafts, Steel

American Hollow Boring Co., Erie, Pa.

## Shaper Attachment

Moore Co., H. A., Rochester, N. Y.

## Shaping Machines

Cochrane-Bly Co., Rochester, N. Y.  
 Columbia Machine Tool Co., Hamilton, Ohio  
 Davis Machine Tool Co., Rochester, N. Y.  
 Fairbanks Company, The, New York  
 Milwaukee Shaper Co., Milwaukee, Wis.  
 Osborne & Sexton Mch. Co., Columbus, O.  
 Rhodes Mfg. Co., Hartford, Conn.  
 Sillw Machine Tool Co., Pawtucket, R. I.  
 Simmons Machine Co., Albany, N. Y.  
 Smith & Mills Co., Cincinnati  
 Steine Tool & Mfg. Co., New Bremen, O.

## Shears, Hand

Armstrong-Bloom Mfg. Co., 341 N. Francisco  
 Av., Chicago  
 Hendley & Whittemore Co., Beloit, Wis.  
 Lewthwaite Co., Geo. A., 116 Walker St., N. Y.  
 I. H. Lewthwaite Machine Co., 417 E. 31st  
 St., New York  
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 Whitney Metal Tool Co., Rockford, Ill.

## Shears, Power

Hendley & Whittemore Co., Beloit, Wis.  
 Quickwork Co., St. Marys, Ohio

## Sine Bars

Way Co., A. F., Hartford, Conn.

## Slotting Attachment for Planer and Shaper

Moore Co., H. A., Rochester, N. Y.

## Slotting Machines

Clough, R. M., Meriden, Conn.  
 Rhodes Mfg. Co., Hartford, Conn.

## Sprockets

Caliman Wheel Co., 1344 Altgeld St., Chicago

## Steel, High Speed

Herbert, Ltd., Alfred, 54 Day St., New York

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## Stock Supports

Way Co., A. F., Hartford, Conn.  
 Will-Burt Company, Orrville, Ohio

## Straightening Machines

Plets & Sons, Carl, Cincinnati  
 Towaler Mfg. Co., John T., Cincinnati  
 Whitney Metal Tool Co., Rockford, Ill.

## Swaging Machines

Etna Mfg. Co., Toledo, Ohio

## Tables, Circular

Cochrane-Bly Co., Rochester, N. Y.  
 Hinkley Machine Works, Hinkley, Ill.  
 Lewthwaite Co., Geo. A., 116 Walker St., N. Y.

## Tap Extractors

Walton Co., Hartford, Conn.

## Tap Wrenches

Alert Tool Co., Philadelphia

## Tapping Machines and Attachments

Avey Drilling Machine Co., Cincinnati  
 Beaman & Smith Co., Providence, R. I.  
 Bicknell-Thomas Co., Greenfield, Mass.  
 Burke Machine Tool Co., Connecticut, Ohio  
 Greenfield Tap & Die Corp., Greenfield, Mass.  
 McCroskey Tool Corporation, Meadville, Pa.  
 Modern Tool Co., Erie, Pa.  
 Rickert-Shafer Co., Erie, Pa.  
 Taylor-Shantz Co., Rochester, N. Y.  
 Turner Machine Co., Danbury, Conn.  
 Whitney Mfg. Co., Hartford, Conn.  
 Whitney Metal Tool Co., Rockford, Ill.  
 Workwell Eng. & Mfg. Co., 618 W. Monroe  
 St., Chicago

## Taps, Collapsing

Modern Tool Co., Erie, Pa.  
 Murchey Machine & Tool Co., Detroit, Mich.  
 Victor Tool Co., Inc., Waynesboro, Pa.

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Greenfield Tap & Die Corp., Greenfield, Mass.  
 National Acme Company, Cleveland  
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## Threading Machines, Bolt and Stud

Greenfield Tap & Die Corp., Greenfield, Mass.  
 National Acme Company, Cleveland

## Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco  
 Av., Chicago  
 Greenfield Tap & Die Corp., Greenfield, Mass.  
 Modern Tool Co., Erie, Pa.  
 Murchey Machine & Tool Co., Detroit, Mich.  
 National Acme Company, Cleveland  
 Ready Tool Co., Bridgeport, Conn.

## Tool Cases

Gerstner & Sons, H., Dayton, Ohio

## Classified Finding Index

### Tool Holders

Armstrong Bros. Tool Co., 808 N. Francisco  
Av., Chicago  
Cleveland National Mchs. Co., Cleveland  
Ready Tool Co., Bridgeport, Conn.  
Hild Tool Holder Co., Washington, D. C.  
Western Tool & Mfg. Co., Springfield, Ohio

### Tools, Boring

Alert Tool Co., Philadelphia  
Armstrong Bros. Tool Co., 808 N. Francisco  
Av., Chicago  
E. & W. Tool & Die Co., Cleveland  
Rigid Tool Holder Co., Washington, D. C.

### Tools, Lathes and Planer

Armstrong Bros. Tool Co., 808 N. Francisco  
Av., Chicago  
Ready Tool Co., Bridgeport, Conn.

### Tools, Machinists'

Armstrong Bros. Tool Co., 808 N. Francisco  
Av., Chicago  
Brown & Sharpe Mfg. Co., Providence, R. I.

### Tools, Spot Facing

Genesee Mfg. Co., Rochester, N. Y.

### Tooth Rounding Machines

Cross Gear & Engine Co., Detroit, Mich.

### Trucks, Machine Shop

Fairbanks Company, The, New York  
New Britain Machine Co., New Britain, Conn.  
Towsley Mfg. Co., John T., Cincinnati

### Turntables

Canton Foundry & Machine Co., Canton, O.

### Valves

Fairbanks Company, The, New York  
Powell Co., Wm., Cincinnati

### Valve Seat Planing Machines, Portable

Stow Flexible Shaft Co., Philadelphia  
Underwood Corp., H. B., Philadelphia

### Vises, Drilling Machine

Alnath Mchs. & Tool Works, Hartford, Conn.  
Armstrong-Blum Mfg. Co., 341 N. Francisco  
Av., Chicago  
Armstrong Bros. Tool Co., 808 N. Francisco  
Av., Chicago  
Carter & Hakes Mchs. Co., W. Winsted, Conn.  
Germanow-Simon Machine Wks., Rochester  
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Edlund Machinery Co., Inc., Cortland, N. Y.  
Germanow-Simon Machine Wks., Rochester  
Hardinge Brothers, 1770 Berteau Av., Chicago  
Hartford Special Mch. Co., Hartford, Conn.  
Sellew Machine Tool Co., Pawtucket, R. I.

### Vises, Shaper

Columbia Machine Tool Co., Hamilton, Ohio

### Wood Working Machinery

Hendley & Whittemore Co., Beloit, Wis.  
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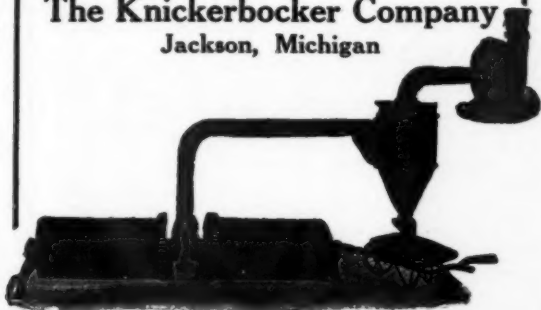
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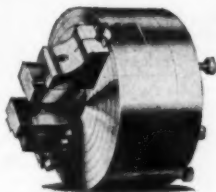
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**The Knickerbocker Company**  
Jackson, Michigan



## Index of Advertisers

Abbott Ball Co.	112	Dale Machinery Co., Inc.	41
Abrasive Machine Tool Co.	17	Davis Machine Tool Co.	75
Ainge Tool, Die & Machine Works, Geo. H.	128	Detroit Machine Tool Co.	13
Ainslie Machine & Tool Works	116	Dickow Machinery Co., Fred C.	108
Alert Tool Co.	130		
Allen Machinery Co., B. C.	150	Edgemont Machine Co.	64
American Hollow Boring Co.	128	Edlund Machinery Co., Inc.	87
American Milling Machine Co.	107	Empire Machinery Exchange	175
American Pipe Bending Mche. Co.	120	Enterprise Machinery Co.	52-13
Anderson Bros. Mfg. Co.	188	Easley Machinery Co., E. L.	146
Armstrong-Blum Mfg. Co.	57-65	Ema Manufacturing Co.	134
Armstrong Bros. Tool Co.	68	Euclid Crane & Hoist Co.	48
Atlas Press Co.	70		
Aurora Tool Works	91		
Avey Drilling Machine Co.	94		
B. & W. Tool & Die Co.	98	Fairbanks Company, The	157
Barnes Co., W. F. & John	37	Federal Machinery Sales Co.	142
Bartlett, Edwin E.	71	Fitzgerald & Co., W. H. J.	168
Bath & Co., Cyril J.	140-141	Frontier Chuck & Tool Co.	191
Beaman & Smith Co.	101		
Bennett Co., W. R.	40		
Bennett Metal Treating Co.	66	Genesee Mfg. Co., Inc.	133
Bertollette Machine Tool Co.	158	Germanow-Simon Machine Wks.	80
Bicknell-Thomas Co.	100	Gerstner & Sons, H.	78
Bignall & Keeler Mche. Works	119	Gits Bros. Mfg. Co.	136
Bleser Manufacturing Co., J.	149	Grand Rapids Grinding Mche. Co.	22
Blount Co., J. G.	8	Grant Mfg. & Machine Co.	134
Boston Scale & Machine Co.	15	Graves Machinery Exchange	166
Brown-McDonald Mchy. Co.	145	Greenfield Machine Co.	9
Brown & Sharpe Mfg. Co.	5	Greenfield Tap & Die Corporation	10
Brownell Machinery Co.	144	Gwilliam Company, The	112
Buchanan Chemical Co., C. G.	69		
Bucher-Smith Co.	74		
Bunting Brass & Bronze Co.	193		
Burke Machine Tool Co.	96-108		
Canedy-Otto Mfg. Co.	97	Hamilton Caster & Mfg. Co.	132
Canton Foundry & Mche. Co.	46	Hardinge Bros., Inc.	30-39
Canton Machine Shop Co.	150	Harris Brothers Co.	84
Carroll Fdry. & Mche. Tool Co.	111	Harris Engineering Co.	26-153
Carter & Hakes Machine Co.	110	Hartford Special Machinery Co.	120
Cashman Tool Co.	125	Heald Machine Co.	4
Chattanooga Machinery Co.	77	Hendley & Whittemore Co.	59
Cincinnati-Bertollette Mche. Tool Company	180	Henry & Wright Mfg. Co.	85
Cincinnati Specialty Mfg. Co.	132	Herbert Ltd., Alfred	40
Cleveland Flue Cleaner Mfg. Co.	24	Hess-Schenck Company	169
Cleveland National Machine Co.	122	High Speed Hammer Co.	92-135
Clough, R. M.	110	Hill, Clarke & Co., of Chicago	159
Cochrane-Bly Co.	61	Hinckley Machine Works	36
Copdill Manufacturing Co.	124	Hollands Tool Co.	80
Columbia Machine Tool Co.	46		
Cooper Flexible Transmission Co., Inc.	116		
Cross Gear & Engine Co.	67		
Cullman Wheel Co.	114	Jacobs Mfg. Co.	127
Curtis, Estate of Albert B.	50	Johnson & Biddle Tool Co.	60
		Johnson & Sons Mchy. Co., Wm. C.	141
		Johnson Co., Wm. T.	139
		Jones Machine Tool Co.	170



(Patented May 25, 1920)

# Two Jaw Adj. Type

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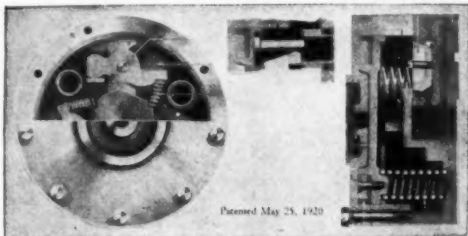
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## Index of Advertisers—Continued

Keller Pneumatic Tool Co.....	194	Ott Grinder Co.....	174
Knickerbocker Co.....	189	Oviatt & Co., D. C.....	172
Knight Machinery Co., W. B.....	113		
Knowlton Machine Co.....	63		
Kremer-Cummins Machine Co.....	89		
		Parker Co., Frank H.....	148
La Salle Tool Co.....	6-7	Partridge, E. O.....	14
Lehmann Machine Co.....	34	Pawling & Harnachleger Co.....	86
Lewthwaite Co., George A.....	53	Pedrick Tool & Machine Co.....	121
Lewthwaite Machine Co., T. H.....	56	Peninsular Machinery Co.....	163
Loebbough-Jordan T. & M. Co.....	54	Peter Bros. Mfg. Co.....	60-102
Lourie Mfg. Co.....	70	Pletz & Sons, Carl.....	35
Lucas & Son, Inc., J. L.....	162	Porter-Cable Machine Co.....	29
Lynd-Farquhar Co.....	172	Potter Tool & Mach. Works, S.A.....	34
		Powell Co., The Wm.....	36
McCabe Lathe & Machinery		Precision Truing Mch. & Tool Co.....	16
Corporation, J. J.....	154-155	Prentiss & Co., Henry.....	161
McCrosky Tool Corporation.....	123	Pyott Foundry Co.....	45
McDonald Machinery Company.....	174		
McLaughlin & Company, A. A.....	150	Quickwork Co.....	58
McMullen Machinery Co.....	170		
Machine Tool Engine'g Co., Inc.....	167		
Madison Manufacturing Co.....	124	Ransom Manufacturing Co.....	27
Manhattan Mch. & Tool Works.....	23	Ready Tool Co.....	32
Manufacturers Mch. Products Co.....	130	Reed Co., Francis.....	84
Marshall & Hushart Mch. Co.....	168	Reid Brothers Co., Inc.....	11
Merkle-Korff Gear Co.....	66	Reliance Elect. & Engineering Co.....	2
Michigan Machine Co.....	136	Reliance Machinery Sales Co.....	139
Miller & Sons, Otto A.....	21	Reynolds Machine Company.....	49
Milwaukee Shaper Co.....	42	Rhodes Mfg. Co.....	43
Minster Machine Co.....	82	Rickett-Shafer Co.....	103
Moback Tool & Machine Mfg. Co.....	131	Rigid Tool Holder Co.....	122
Modern Tool Co.....	195	Rockford Iron Works.....	52
Molitor Machinery Co., Chas.....	176	Romaine Machinery Co., W. L.....	174
Monarch Machine Tool Co.....	28	Russell Machine Co., Inc.....	147
Moore Co., H. A.....	79		
Morrison Mach. Products Co., Inc.....	30	Savage Co., W. J.....	58
Motch & Merryweather Mch.		Schmidt Co., B. L.....	24
Company.....	160	Scully-Jones & Co.....	76
Mueller Machine Tool Co.....	88	Second-Hand Machinery.....	139 to 180
Mummert-Dixon Co.....	90	Sellow Machine Tool Co.....	98
Murphy Machine & Tool Co.....	129	Shelton Tack Co.....	146
		Sidney Machine Tool Co.....	38
National Acme Company.....	3	Silver Manufacturing Co.....	95
National Machine Tool Co.....	74	Simmons Machine Co., Inc.....	115-164
Nazel Engineering & Machine		Sipp Machine Co.....	83
Works.....	51	Smith & Mills Co.....	44
Nelson-Blanch Mfg. Co.....	99	Standard Electric Tool Co.....	86
New Britain Machine Co.....	196	Steinle Turret Machine Co.....	33
New York Mch. Exchange.....	178-179	Stickley Mch. Co., E. B.....	148
Niagara Sprayer Co.....	151	Stocker-Rumely-Wachs Co.....	171
Nicholson & Co., W. H.....	72	Stoehr Machinery Co., A. M.....	141
Niles-Bement-Pond Co.....	143	Stow Flexible Shaft Co.....	22
Northern Engineering Works.....	48	Strand & Co., N. A.....	26
		Streine Tool & Mfg. Co.....	42
O'Brien Machinery Co.....	148	Strong, Carlisle & Hammond Co.....	81-151
Osborne & Sexton Mch. Co.....	44-156		

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## Index of Advertisers—Continued

Taylor & Fenn Co.....	55	Walsh Machinery Co., M. J.....	180
Taylor-Shantz Co.....	105	Walther Machinery Co.....	139
Terrell's Equipment Co.....	47	Walton Co.....	102
Thomas Elevator Co.....	126	Warner, H. D.....	144
Thompson Grinder Co.....	12	Way Co., A. F., Inc.....	118
Toomey, Inc., Frank.....	152	Wayne Machinery Co.....	165
Towaley Mfg. Co., John T.....	32	Weaver Mfg. Co.....	73
Tranter Manufacturing Co.....	150	Webb Machinery Co., R. M.....	176
Tubor, Velick & Co.....	146	Western Tool & Mfg. Co.....	78
Tucker, W. C. & F. C.....	137	White Machinery Co., A. D.....	142
Turner Machine Co.....	82	Whiting & Comstock.....	104
		Whitney Mfg. Co.....	117
		Whitney Metal Tool Co.....	68
		Whitney & Son, Baxter D.....	20
		Willard Machine Tool Co.....	31
		Willard-Middletown Mche. Co.....	54-104
Underwood Corporation, H. B....	138	Will-Burt Company.....	62
United Hammer Co.....	50	Wilmarth & Morman Co.....	25
United States Drill Head Co.....	109	Winterer, Herman L.....	149
United States Mche. Tool Co.....	106	Wisconsin Electric Co.....	18-19
		Workwell Eng. & Mfg. Co.....	64
Van Keuren Co., The.....	118	Wright, David A.....	173
Velco Manufacturing Co., Inc....	76		
Victor Tool Company.....	100	Yoh Supply Co., Wm. S.....	62
Vonnegut Machinery Co.....	177		

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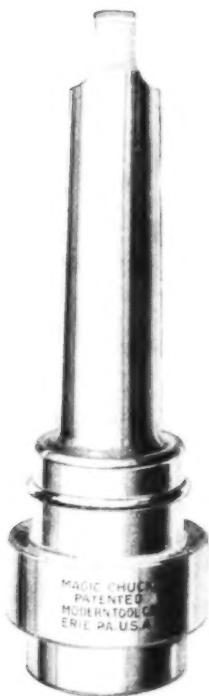






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Originators"**



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